Texas A&M AgriLife Extension

TALL Class XII

TALL Texas Agricultural Lifetime Leadership

International Trip
India

April 27-May 11, 2012

Texas Agricultural Lifetime Leadership

"Preparing men and women in agriculture for leadership responsibilities."

Texas Agricultural Lifetime Leadership

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Please visit our website at http://tall.tamu.edu

TEXAS AGRICULTURAL LIFETIME LEADERSHIP

MISSION

TALL will create a cadre of Texas leaders to help ensure effective understanding of and encourage positive action on key issues, theories, policy and economics that will advance the agricultural industry.

GOALS

To identify, challenge, develop and support emerging leaders.

To serve as a catalyst for mentoring and networking among agricultural leaders.

To increase personal involvement in state and local activities that contribute to the growth and enhancement of Texas agriculture and rural communities.

To heighten knowledge of current issues and encourage leadership in the development and implementation of sound local, state and national policy.

From farm and ranch to processor and supermarket, Texas agriculture faces unabated change. How it changes in response to current forces–such as environmentalism, new technologies, consumer issues, governmental regulation, and global markets–will profoundly impact agriculture for years to come.

The Texas Agricultural Lifetime Leadership (TALL) program assists people in realizing their potential for leadership during this time of critical change.

Educational Leaders

The TALL program enables men and women from all areas of agriculture to:

- Increase knowledge and understanding of agriculture and related industries in the context of today's complex economic, political, and social systems
- Learn the processes of organizational decision making and the role of political institutions
- Acquire a greater appreciation of how agriculture must interact with society as a whole
- Develop skills necessary for leadership at local, state, and national levels and put those skills into practice

Participating in TALL

The TALL program is designed for men and women to enhance their leadership skills. Each class consists of at least 24 people, all of whom are associated with agriculture. Participants come from every sector of agriculture and all parts of Texas.
Candidates apply for admission, indicating their reasons for wanting to participate. Successful candidates have demonstrated leadership potential and willingness to serve in decision-making roles upon completing the program.

Ernest Bailes, IV
Shepherd, TX

Founder/Owner Repro Select (Advanced Reproductive Technologies Company), partner in Rocking B Cattle Company

Amber Brady
Lubbock, TX

Attorney with focus on ag law, real estate transactions, administrative law, water law, wind energy transmission line siting; former Deputy Ag Secretary for South Dakota

Amanda Dyer
Benbrook, TX

Commodity trader specializing in ag risk management at Producers Trading Company. Rancho Espuela Cattle Company – family-owned cow/calf and stocker operation; Board of Directors - Texas Beef Council

Bruce Fleming
Friona, TX

CPA-AzTxCattle Company, owner Cherub Investments; farming (corn, grain, and silage) and agri-business

Tanya Foerster
Lubbock, TX

Capital Farm Credit Director of Advertising; Red Rock Land & Cattle Co/Ute Creek Cattle Company-family owned yearling cattle operation

Klint Forbes
Brownfield, TX

Producer of West Texas Guar-Design, owns and operates sole guar bean processing facility in US; farms - rotational crops: cotton, guar, corn, peanuts, wheat, silage, sunflower, milo

Jose Luis Garza
Rio Grande City, TX

District Judge, EcoTourism, attorney, cow/calf, hay production, high fenced intensive whitetail production

Michael Goudeau
Hungerford, TX

Partner in Goudeau Farms LLC., a commercial horse hay operation; farms rice and wheat; Goudeau Division of J.D.Hudgins Inc., raising reg. Brahman cattle, cow/calf/stocker operation; G&G Ag Services, a custom application service

Jim Hunt
Lubbock, TX

District sales manager-Netafim USA Irrigation Products

Mark Kubecka
Palacios, TX

Owner/operator of Kubecka Aquaculture (a multi-species food-fish production company); partner in M&W Kubecka Farms (corn, cotton, milo, rice), and VP of the Coastal Plains Groundwater District and VP of the Texas Aquaculture Association

Dave Lilley
Wichita Falls, TX

Attorney, CEO Trinity Hughes Construction, owns The Lilley Land & Livestock Company raising cattle, pecans, wheat, hay

Garry Merritt
Leakey, TX

Incoming Real County Judge, attorney representing ranchers and ranching families; cow/calf operation; cattle, sheep, and goat ranching

Mike Metzig
Ropesville, TX

Vice President - Ag Texas Farm Credit Services, provides financing to cotton farmers and agri-businesses

Marsha Moss
Amarillo, TX

Enviro-Ag Engineering Inc., technical specialist providing regulatory assistance to people in ag or related industries; family ranching - grassland, wheat/ryegrass production, and registered Angus cattle

Scott Piercy
Lubbock, TX

Sales manager of Poole Chemical Company - liquid fertilizer and sulfur-based industrial chemical manufacturing and distributing (four states) company and markets nationwide

Jason Pooley
Pampa, TX

Operations manager for Smithfield Premium Genetics, a Purebred Nucleus Swine Facility, (farrow to finish, boar stud, live haul, and feed logistics). Board member and Public Relations Officer for Texas Pork Producers Association

Kimberly Ratcliff
Oakwood, TX

Financial/budget manager-Caney Creek Ranch, hay, sprigs, cow/calf, reg. Charbray, semen and embryos; international cattle sales; ag grant writer, coordinator and recruiter for 100 Ranchers Inc.

Darren Rozell
Tyler, TX

Owner/manager Rozell Peach Farm, Rozell Sprayer Mfg, Red River Specialties

Linda Ryan
Austin, TX

Co-owner of Third Coast Coffee Roasting Co. (Certified Organic, Fair Trade Coffees directly sourced from 20 small farmer cooperatives in 15 countries, distributed internationally)

Texas Agricultural Lifetime Leadership

Ilona Schilderink
Hart, TX

Owner Spandet Dairy; former ag teacher in The Netherlands

Cassie Schulte
Canyon, TX

Marketing and technical service manager for QDG, LLC (feed marketing firm for all co-products produced at the two White Energy, LLC, ethanol plants in the Texas Panhandle, commodity trader)

Jimmy Schulz
Wharton, TX

Farmers Coop of El Campo sales and new projects coordinator (agronomy, ag chemicals, seed, fertilizer, feed, hardware, ginning, elevators, cotton bale warehousing, ag technology and data processing)

Scott Taylor
Katy, TX

Territory sales manager in Central Texas for Monsanto Co.'s National Brands Seeds and Traits Business - DeKalb corn and grain sorghum seed, Delta and Pineland cotton seed, Asgrow soybean seed, and Monsanto's biotechnology traits for corn, cotton, and soybeans

Kip Thompson
Johnson City, TX

Owns Harvest House Farms (beef, pork, lamb and goat custom processing), former President of Texas Association of Meat Processors

Darren Turley
Dublin, TX

Texas Association of Dairymen Executive Director; Turley Dairy-family owned, milk production; sells replacement stock

David Waggoner
Hillsboro, TX

Attorney with focus on ag law, real estate law, banking law, non-profit organizational law and certified mediation services; prior experience with Member of Congress, Legislative Affairs, former Special Assistant to USDA Secretary in Washington, DC

Action-Oriented Program

TALL is a practical, action-oriented, two-year program in which participants meet eight times. Six of the meetings are held at different sites across the state.

The program includes the following activities:

Seminars with experts and group discussions enhance participants' knowledge and understanding of key subjects for today's agricultural leaders. Their studies include leadership development, communication skills, economics and policy, international trade, agricultural institutions and agencies, urban/rural relations, and issues affecting agriculture, such as water and energy.

On-site tours and studies of agriculture-related businesses and industries help participants discover firsthand procedures and problems in production marketing and financing.

Meetings with leaders of government and businesses complement seminars on local, state, and national issues, and are a focus of the first year of the program. TALL participants travel to Washington, D.C., and New York City for direct exposure to the varied social and economic conditions impacting agriculture.

International study is the highlight of the program's second year, with TALL XII traveling to India. The tour focuses on international communications, ecology, government policy, economics, social problems, and educational opportunity. Participants return with greater insights into agriculture's global problems and challenges.

Supporting TALL

The TALL program is conducted by the Texas AgriLife Extension Service, an agency of the Texas A&M System. This intensive leadership development program also depends on the backing of individuals in agriculture and agriculture-related industries and public-spirited citizens. We invite you to consider participating or encouraging others to join us in providing support for the Texas Agricultural Lifetime Leadership program.

TALL Advisory Board

TALL is guided by an advisory board of 24 outstanding leaders with the following officers:

Chairman—James L. Powell
Executive Secretary—Roddy Peeples

Alumni Association

At least 10 years of experience is needed to reach the educational level of TALL graduates. As a result, alumni of TALL become a valuable resource to rural Texas and the agricultural industry. Graduates use their new knowledge and skills to garner leadership roles. Many become active in local organizations, while others pursue even loftier positions.

TALL Mission Statement:

TALL will create a cadre of Texas leaders to help ensure effective understanding and encourage positive action on key issues, theories, policies, and economics that will advance the agriculture industry.

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AgriLIFE EXTENSION
Texas A&M System

Texas Agricultural Lifetime Leadership

Class XII 2010–2012 Program Participants

TEXAS AGRICULTURE LIFETIME LEADERSHIP (TALL)

April 27 - May 11, 2012, INDIA

New Delhi
April 29-30
May 9-10, 2012

Haryana
May 1, 2012

Punjab
May 2-4, 2012

Himachal Pradesh
May 4-5, 2012

Gujarat
May 6-9, 2012

Uttar Pradesh
May 9-10, 2012

TEAM MEMBERS

- Jim Mazurkiewicz, Ph.D
- Amanda Dyer
- Amber Brady
- Bruce Fleming
- Darren Rozell
- Darren Turley
- Dave Lilley
- David Waggoner
- Ernest Bailes, IV
- Garry Merritt
- Ilona Schilderink
- Jason Pooley
- Jim Hunt
- Jimmy Schulz
- Kimberly Ratcliff
- Kip Thompson
- Linda Ryan
- Mark Kubecka
- Marsha Moss
- Michael Goudeau
- Mike Metzig
- Scott Piercy
- Scott Taylor
- Tanya Foerster

EMERGENCY CONTACTS

Texas Agricultural Lifetime Leadership:

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Assocom-India:

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Email: info@assocom-india.com, Website: www.assocom-india.com

Key Contact:

Mr. Raj Kapoor, Tel.: +91-11-47675218, Cell: +91-9810158318

Other Contacts:

Mr. Ashish Sabharwal, Tel.: +91-11-47675200, Cell: +91-9910375200

Mr. Rohit Sachdeva, Tel.: +91-11-47675215, Cell: +91-9810428318

CONTACTS - COACH/TRANSPORT

Location	Name of Driver	Driver Cell	Vehicle Number
New Delhi			
Haryana			
Punjab			
Himachal Pradesh			
Gujarat			
Uttar Pradesh			

YOUR ACCOMMODATION

New Delhi

Hotel Ashtan Sarovar Portico

Green Park, C-2, Green park Extension, New Delhi – 110016
Tel.: 011-46833333
Website: http://www.sarovar hotels.com/new-delhi-the-ashtan-sarovar-portico.shtml

Karnal, Haryana

Hotel Jewel's

Jewel Chowk, NH-1
Karnal, Haryana
Tel.: +91-184-2266996
Website: http://hoteljewels.in/ contacts.html

Ludhiana, Punjab

Parker Guest House

Punjab Agriculture University,
Ludhiana - 141004, Punjab, INDIA
Tel.: 91-161- 2401960-79 Ext:- 213
Fax: 91-161- 2400945
Contact Person:
Dr. Nirmal Jaura - 9815314714

Shimla, Himachal Pradesh

Hotel The Holiday Home (HHH Hotel)

Circular Road, Shimla – 171 001
Tel.: 0177-2812890-95, 6533169,
Fax: 0177-2801705
Email: hhh@hptdc.in
Website: hptdc.nic.in

Anand, Gujarat

Neejanand Resort

Anand-Borsad Road, Near Andharia Chakla, Village: KHANDHALI 388560.
Ta. & Dist. Anand, Gujarat, India.
Tel.: +91-2692-656810 / 644236
Email: inquiry@neejanand.com
Website: www.neejanand.com

Agra, Uttar Pradesh

The Gateway Hotel

Fatehabad Road Agra, Taj Ganj, Fatehabad Road, Agra - 282001,
Uttar Pradesh, India
Tel.: +91-562-6602000
Fax: +91-562-2232420
Email: gateway.agra@tajhotels.com

TRAVEL SCHEDULE - TEXAS AGRICULTURE LIFETIME LEADERSHIP (TALL)

April 27 to May 11, 2012, India

Friday - April 27	Houston / Dubai	1850/1845+1	EK212
Saturday - April 28	Dubai / Delhi	2210/0240+1	EK512
Sunday - April 29	Airport pick-up **(Please see PLACARD of TALL Outside Arrival Lounge)**		
	Assocom Team (Mr. Raj Kapoor, Mr. Ashish Sabharwal and Mr. Rohit Sachdeva) will personally welcome team on arrival at airport		
	Local Delhi Visit (Assocom Office and Site Seeing) at (11 am to 8 pm)		
	Accommodation - Hotel Ashton Sarovar Portico, New Delhi		
	Delhi Local (11 am to 8 pm)		
Tuesday - May 1	Pick up of **Garry Anthony Merritt at 2:40 am**		EK512
	5:30 pm travel to Karnal		By bus
	(Distance 15 Kms and travel time 3.5 hours approx.)		
	Accommodation - Hotel Jewel		
Wednesday - May 02	Local Karnal		
	Travel to Ludhiana		
	Accommodation - Guest House of Punjab Agricultural University, Ludhiana		
Thursday - May 03	Local Ludhiana		
Friday - May 04	Travel to Moga and Shimla	**278 Kms. – NH 94 (5 hours)**	

	Accommodation - Hotel The Holiday Home (HHH Hotel)		
Saturday - May 05	Local Shimla		
Sunday - May 06	Return to Delhi and drop at Nizamudin Railway Station to catch Train from Delhi to Vadodara 4.30 pm		
May 06/07	Delhi / Vadodara	1630 / 0330+1	Rajdhani Train
Monday - May 07	Vadodara / Anand	0400-0515	Bus
	Accommodation - Neejanand Resort		
Tuesday - May 08	Anand / Gondal	0530 / 1100	Bus
	(Distance: 275 km and travel time about 5 hours approx.)		
	Gondal / Anand	1500 / 2030	Bus
Wednesday - May 09	Local Anand and drop at Vadodara Airport by 6 pm		
Wednesday - May 09	Vadodara / Delhi	1955 / 2130	Jet Flight S2-393
Wednesday - May 09	Delhi Agra	2200 / 0130+1	by Bus
	Distance 253 Kms (5 hours drive)		
	Accommodation - The Gateway Hotel Fatehabad Road Agra		
Thursday - May 10	Local Agra and Return – Delhi and drop at airport by 11 pm		
Friday - May 11	Delhi / Dubai	0415 / 0610	EK-513
Friday - May 11	Dubai / Houston	0905 / 1625	EK-211

TRAVEL - TIPS

The following is a set of "tips" based on the observances of American travelers to India. Because of the infinite size and scope of Indian "cultural factors", the tips are followed by Fa suggested reading list which may help the American traveler form his/her impressions of India. Be sure also to read the Country Specific Information (India).

Luggage And Bags:

1. A hard-top suitcase maybe a better idea than soft bags. You should have a good lock.
2. A lightweight nylon day bag with zippered compartments is an absolute necessity for your daily outings.
3. Leave your main bag at the hotel.
4. Wear a pair of socks when visiting places of worship. Walking barefoot over a hot surface may not be easy.

Clothing/Shoes/Weather Gear:

Clothes: Preferably cotton unless you are visiting hill station or visiting North India in winter: desired pairs Trousers 1 pair Shorts for men, or long Skirt for women, 2-4 lightweight Shirts/T-shirts, 1 lightweight Jacket or Raincoat.,1 Hat/Cap,1 Swimsuit,1 Hand Towel., pair Handkerchiefs, UV protection Sunglasses, Belt, Scarf etc. A set of formal clothing.

Footwear: 1 pair sandals/slip-ins for frequent removal when visiting places of worship.

Toiletries & Medical Supplies: Small travel-sized packages of Toothpaste, Dental Floss, Bath & Toilet Soaps, Shampoo & Conditioner, Shaving foam/gel, Deodorant/Anti-perspirant, Ear buds and Laundry detergent. Keep liquids plastic bags. Toothbrush, Hairbrush. Razor (electric shaver may not work every where.. manual one is better) and extra blades. Small scissors or multipurpose tool, Nail clippers, Foot scrubber, Small Mirror, Hand towel and tissues.

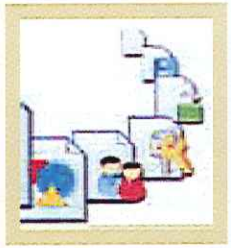
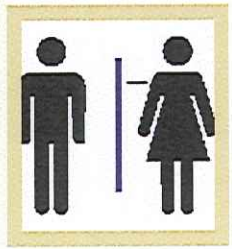


Photo Equipment: Power Tips in India, the electric current is 230-240V AC and the socket is a round three-pin one. Carry only the most essential electric gadgets with you.

Documents: Passport with Valid Visas Visiting/Business Cards for meetings. Keep a photocopy of your passport (if not all important documents) in each and every checkedin bag. Travel Tickets. Credit Card(s), Traveler's Cheques, Cash. Spare passport-size photographs.

Miscellaneous: Still/Movie Camera with films, lenses and accessories, Pens, Small notebook, Glue stick, Personal address book, Maps, Guidebooks.

At Eating Joints: Though sticking to a vegetarian diet is recommended, eating only thoroughly cooked meat is advisable.



Restrooms: While in India, it is usually best to avoid use of public rest-rooms. Most hotels catering to foreigners provide Western style restroom facilities. If forced to use accommodations in unknown surroundings, it is important to know what to expect. Indian-style toilets will most likely consist of a hole in the ground in place of a western style toilet and will substitute water in place of toilet paper. If you are fastidious, carrying toilet paper and soap

or some sort of hand sanitizer at all times may prove to a psychological as well as a hygenic benefit.

Avoid: Pork Products , Fried food from vendors and Dishes using excessive oil.

Arrival & Departure Formalities Information:

Arrival Formalities: All persons including Indian nationals are required to fill in a Disembarkation Card, at the time of arrival.

Departure From India: All persons, except nationals of Bhutan & Nepal, leaving by air, road or rail have to fill in an Embarkation Card at the time of departure.

Customs: Visitors are generally required to make an oral baggage declaration in respect of baggage and foreign currency in their possession. They are also required to obtain the Currency Declaration Form from the Customs. They should fill in the Disembarkation Card handed over to them by the airline during the course of the flight.

There are two Channels for Clearance :

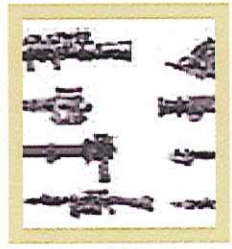
Green Channel: For passengers not in possession of any dutiable articles or unaccompanied baggage.

Red Channel: For passengers with dutiable articles or unaccompanied baggage or high value articles to be entered on the tourist Baggage Re-Export Form. Dutiable articles or unaccompanied baggage or high-value articles must be entered on a Tourist Baggage Re-Export Form (TBRE). These articles must be reexported at the time of departure. A failure to re-export anything listed on the TBRE becomes a payable duty levied for each missing

item. The following duty-free possessions are permissible-clothes and jewellery, cameras and up to five rolls of film; binoculars, a portable musical instrument, a radio or portable tape recorder, a tent and camping equipment, fishing rod, a pair of skis, two tennis rackets, 200 cigarettes or 50 cigars, .95 litres of liquor, and gifts not exceeding a value of Rs. 600 (about $12). Depending on the attitude of the customs' official, one may or may not have to enter a portable computer on a TBRE form.

Currency Allowed In India: There are no restrictions on the amount of foreign currency or travellers' cheques a tourist may bring into India provided he makes a declaration in the Currency Declaration Form given to him on arrival. This will enable him not only to exchange the currency bought in, but also to take the unspent currency out of India on departure. Cash, bank notes and travellers' cheques up to US$ 1,000 or equivalent, need not be declared at the time of entry. Any money in the form of travellers' cheques, drafts, bills, cheques, etc. in convertible currencies, which tourists wish to convert into Indian currency, should be exchanged only through authorised money changers and banks who will issue an encashment certificate that is required at the time of reconversion of any unspent money into foreign currency. Exchanging of foreign currency other than banks or authorised money changers is an offense under Foreign Exchange Regulations Act 1973.

SECURITY - TIPS



1. Travel Preparation: General

- Keep a low profile
- Learn at least a few phrases in the local language
- Leave a copy of your itinerary with your family
- Go through your carry-on luggage to remove items not needed or which pose a security risk, such as:
- Excess credit cards, Membership- or ID- cards for any group that may be targeted
- Business cards with provocative information or revealing national, ethnic orreligious affiliation
- Political, religious or sexually explicit literature
- Anything that looks like a weapon expensive or religious jewelry

Essentials: Depending on your situation, consider bringing:

- All necessary official documents (e.g. passport, visa)
- Photocopy of passport and tickets or a list of essential information (carried separately)
- A list of credit card numbers and loss-notification numbers
- Enough money in the local currency inclusive coins or tokens to use a pay phone
- Enough of any required medication to survive delays, carried in original container with prescription

- Laptops and notebooks if you must (carry them in your hand luggage)
- Any medical or personal hygiene products which you use periodically, in case of recurring chronic problems

Dressing: Dress to blend in with the foreign environment - Keep a low profile

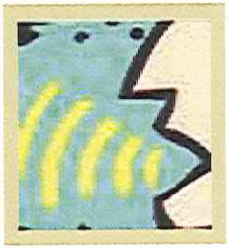
- Leave behind expensive jewelry and clothes that mark you as a wealthy foreigner
- Be conscious of local norms in dress, speech, etc.

Luggage Travel with secure luggage:

- Locked, non-descript luggage, secured with a strap (hard luggage is safer)
- Use closed-faced luggage tags, Carry-on bag with necessities in case of lost luggage, Travel light

2. Traveling

- Keep Alert
- Be aware of what is around at all times
- If available, use valet service
- Confirm flight time, arrive at airport early
- Say good-byes at the curb
- Move immediately through security check area to the departure lounge
- Say no if asked to carry any bags or packages for strangers or, for that matter, friends, unless you are certain of what is inside
- Say no if asked to watch luggage
- Move away from any disturbance or anyone receiving exceptional attention
- Don't leave your baggage unattended, even for a minute



3. Emergency: Natural Disaster

- Have a pre-established plan (with family and colleagues) for where to go in the event of a disaster; that plan should include going immediately to your local diplomatic representation or the Red Cross to report yourself alive. (Note: the symbol for the Red Cross in some Islamic countries is a red crescent in place of the Red Cross.)
- Contact your home to save your family worry

Medical Emergency

- Never be afraid to avail yourself of local medical care
- Some medicines are dangerous for people of different countries; find a doctor who has treated foreigners, such as a hotel doctor, recommended by your embassy, the Red Cross, or another expatriate

4. Contacts: Emergencies / Personal assistance

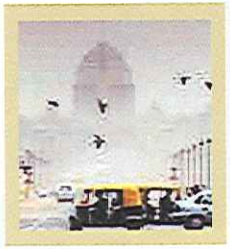
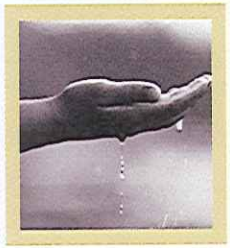
- Don't admit fault or make any statement (other than for the police)
- Contact your diplomatic representation and your air carrier if necessary

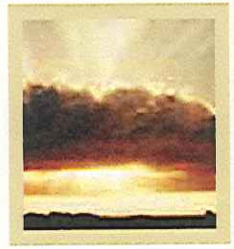
Popular Hindi Phrases:

English Phrases	Hindi Phrases
Hi!	Namastey!
Good morning!	Suprabhaat
Good evening!	Shubh sundhyaa.
Welcome! (to greet someone)	Aapka swaagat hai!
How are you?	Aap kaisey hain?
I'm fine, thanks!	Mein theek hoon, shukriya!

And you?	Aur aap?
Good/ So-So. Accha/	Theek-thaak
Thank you (very much)!	Shukriyaa (Bahut dhanyavaad)
Hey! Friend!	Arrey, Dost!.
I missed you so much!	Mujhey aapkee bahut yaad aaee.?
What's new?	Kyaa chal rahaa hai?;
Nothing much	Zyaada kuch nahi
Good night!	Shubh raatri.
See you later!	Phir milen-gay.!
Good bye!	Alvida!
Asking for Help and Directions I'm lost	Hum kho gaye hain.
Can I help you?	Kya mein aapki madad kar sakta/sakti (female) hoon?
Can you help me?	Kya aap meri madad kar saktey hain?
Where is the (bathroom/ pharmacy)?	úaucaghara/ pharmacy kahaan hai?
Go straight! then turn left/ right!	Seedhey jaaey! Phir bânyae/ dânyae mudiye
One moment please!	Ek minat...
Hold on please! (phone)	Ek minat...
How much is this?	Yeh kaisey diyaa?
Excuse me ...! (to ask for something)	Kshama keejeeae...
Excuse me! (to pass by)	Kshama keejeeae...
Come with me!	Mere saath aaeeyé!

INDIAN - CLIMATE



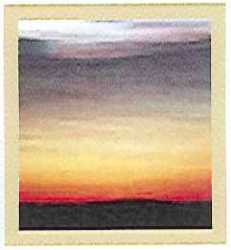
Cycle of Season: Though divided into different climatic zones, India seems to be unified by primarily four seasons- Winter, Summer, Advancing Monsoon and Retreating Monsoon.

Winter: December to February is the wintertime in almost all of India. At this time of the year, days are cold with average temperature of 54 °F, but it can drop down to below 32 °F in some higher ranges of northern India. Normally winters are dry in northern India. In Southern part, the temperature difference is not so marked due to moderating effect of Indian Ocean, Bay of Bengal and Arabian Sea.

Summer: March, April, May and June are the summer months in India. It is a time period when rays of the sun fall vertically on Indian subcontinent. The average temperature is around 90 °F but in western region the maximum temperature can be far above the average. Hot wind, known, as 'Loo' is the marked feature of summers in northern India.

Advancing Monsoon: It is the time period when India gets major part of its share of rain. Months of June, July, August and September form the core of Advancing Monsoon in almost all parts of country. The monsoon approaches with moisture laden winds, this sudden approach is marked with violent thunderstorms and lightening, known as 'break' of the monsoon.

Retreating Monsoon: This season starts, when monsoon after drenching all of India, begins to retreat. With the month of September, rainfall began to decrease and as we approach



November, the monsoon is completely gone from major part of India, except for Tamil Nadu and some other southern states, which also receive rain from Western Disturbance.

In recent times, this cycle of season has been disturbed due to uncontrolled industrialization and other developmental activities resulting in drastic changes in climate. This has lead to climatic disasters such as Drought, Landslides Floods and Global Warming. The unchecked cutting down of trees indirectly leads to landslide and drought. Annual Floods have become part of life in many regions of India. It results in large-scale loss of life and property. The phenomenon of Global Warming is mainly the result of air pollution. The polluting industries and vehicles running endlessly on the roads emit hazardous gases such as Carbon dioxide, Sulphur dioxide, Carbon monoxide, Methane etc. These gases produce 'Green House' effect, which leads to Global Warming. It may lead to very serious climatic changes. The increase in average temperature of earth is will result in melting down of the polar ice and glaciers, which in turn will lead to increased ocean level. This rising ocean level may submerge many of today's existing islands and coastal cities.

The Indian seasons in the Christian calendar are:

* Spring Mid-Feb to April
* Monsoon July to September
* Pre-winter Mid-Nov to December
* Summer May and June
* Autumn Sept to Mid-November
* Winter Mid-December to Mid-February

Conversion Rates:

1 mile = 1.609 344 kilometer
1 kilogram = 2.204 622 621 8 lb, lbs
1 pound = 0.453 592 37 kilogram
1 degree Celsius = 33.8 degree Fahrenheit
1 ounce = 0.062 5 lb, lbs

EDUCATION IN INDIA

Education in India has a history stretching back to the ancient urban centers of learning at Taxila and Nalanda. Monastic order of education under the supervision of a Guru (A teacher) was a favored form of education for the nobility in ancient India. The knowledge in these orders was often related to the tasks a section of the society had to perform. The priest class, the Brahmins, were imparted knowledge of religion, philosophy, and other ancillary branches while the warrior class, the Kshatriya, were trained in the various aspects of warfare. The business class, the Vaishya, were taught their trade and the lowest class of the Shudras was generally deprived of educational advantages.

Education in India falls under the control of both the Union Government and the states, with some responsibilities lying with the Union and the states having autonomy for others. The various articles of the Indian Constitution provide for education as a fundamental right. Most universities in India are Union or State Government controlled. India has made a huge progress in terms of increasing primary education attendance rate and expanding literacy to approximately two thirds of the population. India's improved education system is often cited as one of the main contributors to the economic rise of India. Much of the progress in education has been credited to various private institutions. The private education market in India is estimated to be worth $40 billion in 2008 and will increase to $68 billion by 2012.

Western education became ingrained into Indian society with the establishment of the British Rule. With the arrival of the British Rule in India a class of Westernized elite was versed in the Western system of

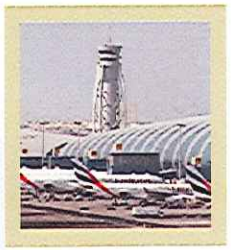
education which the British had introduced. This system soon became solidified in India as a number of primary, secondary, and tertiary centres for education cropped up during the colonial era.

Primary Education: The Indian government lays emphasis to primary education up to the age of fourteen years (referred to as Elementary Education in India.). 80% of all recognized schools at the Elementary Stage are government run or supported, making it the largest provider of education in the Country. This primary education scheme has also shown a high Gross Enrollment Ratio of 9395% for the last three years in some states. Significant improvement in enrollment of girls has also been made as a part of this scheme. The current scheme for universalization of Education for All is the (SSA) Sarva Shiksha Abhiyan which is one of the largest education initiatives in the world. Enrollment has been enhanced, but the levels of quality remain low. A multilingual web portal on Primary Education is available with rich multimedia content for children and forums to discuss on the Educational issues. India Development Gateway is a nation wide initiative that seeks to facilitate rural empowerment through provision of responsive information, products and services in local languages.

Secondary Education: Government of India gives high accentuation to Secondary education which covers children from 14-18 years of age. A significant feature of India's secondary school system is the emphasis on inclusion of the disadvantaged sections of the society. Professionals from established institutes are often called to support in vocational training. Another feature of India's secondary school system is its emphasis on profession based vocational training to help students attain skills for finding a vocation of his/her choosing. A significant new feature has been the extension of SSA to secondary education in the form of the Madhyamik Shiksha Abhiyan. A special Integrated Education for Disabled Children (IEDC) programme was started in 1974 with a focus on primary education. But which was converted into Inclusive Education at Secondary Stage.

Tertiary Education: India's higher education system is the third largest in the world, after China and the United States. The main governing body at the tertiary level is the University Grants Commission (India), which enforces its standards, advises the government, and helps coordinate between the centre and the state. Accreditation for higher learning is overseen by 12 autonomous institutions established by the University Grants Commission. As of 2009 records, India has 20 central universities, 215 state universities, 100 deemed universities, 5 institutions established and functioning under the State Act, and 13 institutes which are of national importance. Other institutions include 16000 colleges, including 1800 exclusive women's colleges, functioning under these universities and institutions. The emphasis in the tertiary level of education lies on science and technology. Indian educational institutions by 2004 consisted of a large number of technology institutes. Distance learning is also a feature of the Indian higher education system.

Some institutions of India, such as the Indian Institutes of Technology (IITs), have been globally acclaimed for their standard of education. The IITs enroll about 8000 students annually and the alumni have contributed to both the growth of the private sector and the public sectors of India.



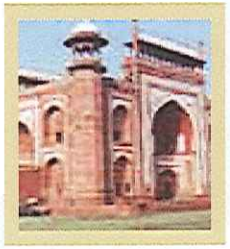
ITINERARY -
TALL

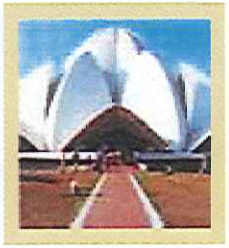
April 27 to May 11, 2012, India

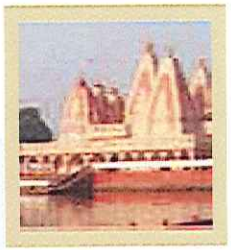
Day 1 - Sunday, April 29, 2012

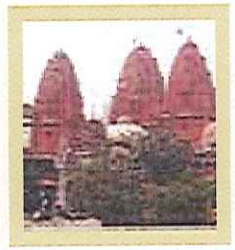
0430	Arrival New Delhi and check-in
	Hotel Ashtan Sarovar Portico
1100	Leave Hotel
1130	Visit Assocom-India Office
	Briefing on Agenda and other discussions
1230	Lunch at Assocom-India Office
1300	Sight seeing in Delhi
	Jama Masjid, Red Fort, Dilli Haat, President house, India Gate, Rajghat
	(Martyer of Mahtama Gandhi)
1830	Dinner at:
	Gulati – An Indian Ethnic Restaurant (No Hard Drinks available)
	Pandara Market
2030	Return to Hotel

Day 2	**Monday, April 30, 2012**
0530	Iskcon Food Relief Foundation
	India's Biggest Feeding Program Kitchen
	Mid-Day meals of school Children
	Opposite Community Hall, Aali Vihar, Aali Village, Mathura Road,
	New Delhi - 110044
0800	Visit ISKCON Temple
	Kailash Colony, New Delhi
1000	Back to Hotel and Breakfast
	Rest
1230	Leave Hotel and Lunch at:
	Fujiya – A Chinese Restaurant
	Malcha Marg, Chanakya Puri
1430	Visit - Indian Agricultural Research Institute (IARI)
	Pusa Institutional Area, Pusa, New Delhi – 110012.
	Website: www.iari.res.in
	Agenda:
	Meeting with Director and Other Officials at Central Library, IARI
	Visit Agri Museum



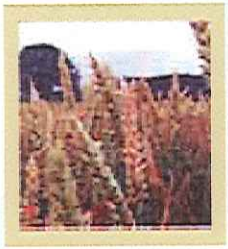


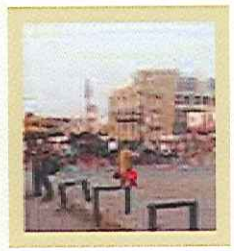




	Visit Lab & Technical Departments
1830	Interactive Meeting with FAS, USDA / New Delhi
	Participants - TALL Group, Assocom Team and Thom Wright / FAS.
1930	**Cultural Events** - Dandiya (Gujarat), Gida (Punjab), Folk (Rajasthan)
	Dinner and Cocktail
	Venue: Hotel Forte Grand
	Chanakya Lane, Akbar Bhawan Annexe, Chanakyapuri, New Delhi-110021
	Tel.: +91-11-26878320-23, Fax: +91-11-26878324
2100	Back to Hotel Ashtan Sarovar Portico
Day 3	**Tuesday, May 01, 2012**
0730	Check out Hotel Ashtan Sarovar Portico
	Grain Conference (**Venue:** Multi Purpose Hall, New Building,
	India International Centre, 40, Maxmueller Marg, Lodhi Road, New Delhi)
	Presentations and Interaction with Officials and Industry Leaders
	Details will be provided in seminar booklet
1730	Leave for Karnal, Haryana
2100	Check-In
	Hotel Jewel's
	Dinner

Day 4	**Wednesday, May 02, 2012**
	Check out from the Hotel
0900	Visit National Dairy Research Institute (NDRI Deemed University)
	Karnal – 132001, Haryana. Website: www.ndri.res.in
	Agenda
	Interaction with Director and officials
	Visit to:
	• Agricultural Technology Information Centre (ATIC)
	• Animal Biotechnology Centre
	• Experimental Dairy
	• Modern Dairy Plant
	• Cattle Feed
1230	Lunch and Check out
1400	Directorate of Wheat Research
	Wheat Production, Quality, Biotechnology
	Website: www.dwr.in **(It will be wheat harvesting season)**
	• Interaction with DWR Scientists in VS Mathur Hall
	• Museum
	• Visit to Laboratories (Quality, Biotechnology, Pathology and Barley)

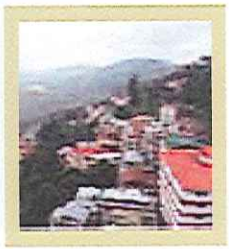


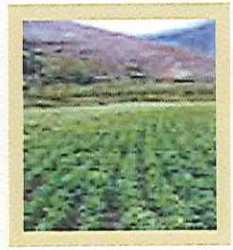


	• Field Visit
1600	Leave for Ludhiana, Punjab
2030	Dinner at McDonald
	Check in –
	Parker House of Punjab Agricultural University
Day 5	**Thursday, May 3, 2012**
0900-1700	Visit - Punjab Agricultural University, Ludhiana. Website: www.pau.edu
	• Meeting with Vice Chancellor and heads of different department's heads/Deens
	• Visit to Crop Museum, Department of Plant Breeding & Genetics
	• Visit to Department of Food Science and Technology
	• Visit to Processing and Food Engineering
	• Visit to School of Agricultural Biotechnology
	• Visit to field areas of Department of Plant Breeding & Genetics/Agronmeteorology/ Entomology / vegetable
1300	Lunch
1500	Visit to Research Hall, Department of Farm Machinery and Power Engineering
1545	Visit to Museum of Rural Life of Punjab

1630	Visit to Plant Clinic
	Visit departments – Food Technology, Biotechnology, Plant Breeding, etc.
	Visit – Agri Museum
1930-2030	Dinner

Day 6	**Friday, May 4, 2012**
0630	Check out and Breakfast
0730	Leave for Moga
1000	Visit Grain handling and storage facilities
	Adani Agri Logistics Limited
	(a good example of Public-Private Partnership)
	Village Dagru, 10 km stone, Moga-Ferozepur Road, Moga, Punjab
	Website: www.adanigroup.com/Agro.html
	Contact: Mr. Puneet Mehndirata, Cell: 09988410799
1330	Lunch
1430	(**Optional** if time permits)
	Visit Oswal Spinning & Weaving Mills Ltd.
	O Dhandari Kalan, G.T. Road, Jugiana, Ludhiana - 141014, Punjab
	Tel.: +91-1-61-2511202 Ex:- 203-204-205, Fax: +91-161-2511201





Email: mail@oswalcotton.com, Website: www.oswalcotton.com

1530 Leave for Shimla

Distance - 264 Kms. (6 hours Drive)

2130 Check in Hotel

Hotel The Holiday Home (HHH Hotel)

Dinner

Day 7 **Saturday, May 5, 2012**

0800 Visit Bishop Cotton School and interaction with students and see some of their regular activities

Contact Person: Mr. Roy Christopher Robinson

Head Master, Bishop Cotton School

Shimla – 171 002, Himachal Pradesh. Tel.: 0177-2620880

Fax: 0177-2671360, Email: headmaster@bishopcotton.com

1000 Central Potato Research Institute (Indian Council of Agricultural Research)

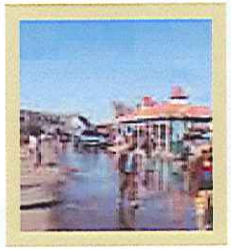
Shimla-171001, Himachal Pradesh

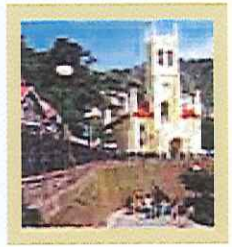
Gram-POTATOSEARCH, Shimla. Website: www.cpri.ernet.in

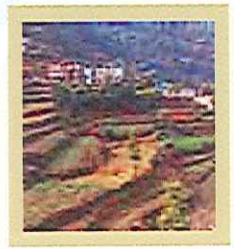
Agenda:

1. Lecture on Potato
2. Scientists Interaction with the delegation

	3. Visit of different Labs/Museium of the Institute
	4. Visit to Farmers field
1300	LUNCH
1400	Visit at Agriculture Department, Government of Himachal Pradesh - Meeting with Director
1530	Visit Department of Bio Science, Bio Technology
	Himachal Pradesh University
	Summer Hill, Shimla-171005, Himachal Pradesh
	Website: www.hpuniv.nic.in
	Meeting with Prof. H. S. Banyal, Dean of Studies.
	Dr. D. R. Thakur, Department of Biosciences,
1700	Sight Scene, Shopping and Dinner
Day 8	**Sunday, May 6, 2012**
0530	Check out and Breakfast
0600	Leave for Delhi **(Distance 343 Kms and travel time 7 hours)**
	On way back to Delhi visit Agricultural Farms at Solan, Himachal Pradesh
1200	Lunch
	Neelkanth Restaurant







National Highway, Grand Trunk Road

May 06 / 07 Delhi / Vadodara 1630 / 0330+1 by Rajdhani Train

Day 9 **Monday, May 7, 2012**

0530 Check-in

Neejanand Resort

Anand-Borsad Road, Near Andharia Chakla

Village: Khandhali 388560. Ta. & Dist. Anand, Gujarat, India.

Tel.: +91-2692-656810 / 644236, Fax: +91-2696-283036

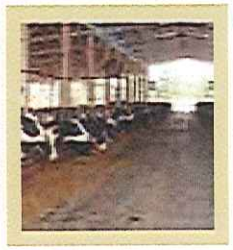
Email: inquiry@neejanand.com, www.neejanand.com

0900 Interactive Session with on Dairy and Cotton

With officials, farmers and industry representatives

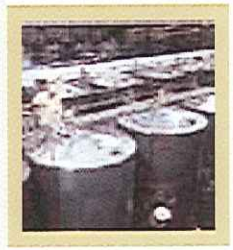
at formal function – Hotel La Casa Inn.

Presentation by TALL on Best Dairy Practices in US.



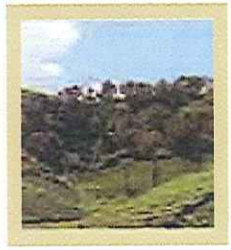
Indian Presentations

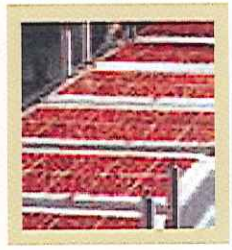
- Dairy development in India
- Indian cattle and buffalo breeds)
- Presentation on cotton



- Presentations by faculties from AAU (Dairy and Cotton)

	• Presentation by Gauvigyan Adhyayan Avam Sodh Samsthan (Cow Science Education and Research Institute), Jam Nagar		
	• Presentation by TALL Representative		
1300	Lunch		
1400	Interactive session to continue		
1530-1730	Visit – Anand Agricultural University		
	Department of Dairy Science		
	Department of Food Processing Technology and Bio-Energy		
	Department of Agriculture		
2030	Dinner with AAU Faculty and Industry representatives at Hotel Neejanand		
Day 10	**Tuesday, May 8, 2012***		
0530	Travel from Anand to Gondwana	1400 / 2100	Bus
	Distance-261 Kms (5 hours drive)		
	Visit Gir Cattle Farms and Agricultural Field Visit		
1300	Lunch and back to Anand		
	Gondwana / Anand	1400 / 2000	Bus
	Dinner at Hotel Neejanand, Anand		





*** This schedule may be changed as we are trying to schedule visit to Krushi Mahotsav-2012 (Annual Agriculture Fair of Farm and Livestock) which will be inaugurated by Chief Minister**

Day 11	**Wednesday, May 9, 2012**
	Check out from hotel
1030	Travel to AMUL (Largest Dairy Cooperative of the World)
	• Visit Dairy Plant
	• Visit Chocolate Plant
	• Visit Cattle Feed Plant
	• Visit Bakery and Extruded Snacks Plant
1300	Lunch at Hotel Neejanand with Industry Representatives
1430	Visit
	Mother Dairy Fruit & Vegetable Private Limited.
	Lentil (Dal) Analogue project
	C/o. Arcogul Campus , N.H.No. 8, Chikhodra-388120, Dist. Anand, Gujarat
15.30	Visit Oil Plant
	Anand Regional Co-operative Oilseeds Growers' Union Ltd.
	N.H.No. 8, Chikhodra 388120, Dist. Anand, Gujarat
May 9	**Travel from** Vadodara to Delhi - 1955 / 2200 by 9W393

	Delhi / Agra	2230 / 0200+1	By Road

Day 12 **Thursday, May 10, 2012**

Check – In

The Gateway Hotel Fatehabad Road Agra

Breakfast and Check out

1200 Visit Taj Mahal, Sikandara / Agra Fort and Dayal Bagh

Visit Agra University

Lunch and back to **Delhi (245 kms. / 5 hrs.)**

2100 Dinner at:

Hotel Centaur

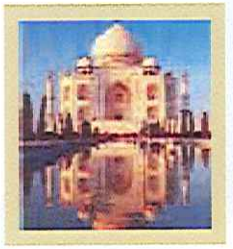
IGI Airport, New Delhi – 110037. Tel: 91-11-25652223

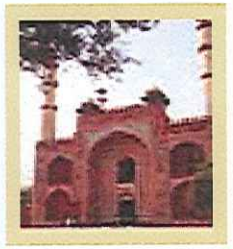
(The hotel is 1 k.m. from the International Airport)

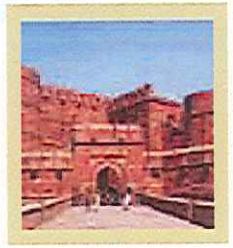
2200 Leave for Indira Gandhi International Airport, Delhi

Depart for Home

Note: **Timings may not match at couple of locations due to traffic movements and change of various visit / meetings.**







KEY CONTACTS

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Fax: +91-184-2267390

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Dr. Nirmal Jaura - 9815314714

Mr. Puneet Mehndirata

Adani Agri Logistics Limited

Cell: 09988410799

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Company Secretary, Oswal Spinning & Weaving Mills Ltd.

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PS: **Mr. Khushi Ram**

Fax: 0177-2830612

Mr. Ram Subhag Singh

Secretary (Agriculture)

Tel.: 0177-2622132, 2622132 / 619, 2624263, 98050-13636

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Fax: 0177-2624460

Email: dircpri@sancharnet.in

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Dr. Ashwin M. Thaker

Dean, Faculty of Veterinary Science & Animal Husbandry, Anand Agricultural University, Anand 388 001, India

Tel./Fax: +91-2692-261486 (O)

Cell: 9998009970

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Professor and Head, Dairy Dept.

Email: knwadhwani@yahoo.co.in

Dr. Baljeet Singh

Business Manager, Business Planning and Development Unit, Anand Agricultural University, Anand, Gujarat-388110

Tel.: 02692-262052

Fax: 02692-262052

Cell: 9879556212

Website: www.aaubpd.com, www.aau.in

Mr. Rahul Kumar Srivastava

Managing Director, Kaira District Co-op Milk Producers' Union Ltd. (Amul Dairy), Anand

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TALL XII class at the
Assocom Office in New Delhi.

Group photo at Jama Masjid meaning
“world reflecting mosque.”

The “Red Fort”, New Delhi.
“All India War Memorial.”

Cremation memorial site
of Mahatama Gandhi.

Snake charmer at the
Gandhi park gates

QUTB-Minar
Tower in
Delhi.

Trash and feral hogs on
the streets of Delhi.

Brahman cattle roam the streets of Delhi.

Trash and cattle in a vacant lot in Delhi.

SIr Sir Temple in Delhi.

Meeting at IARI with Dr. H.S. Gupta.

Green house vegetable production at the
IARI, Pusa, New Delhi.

Indian Agricultural Research Institute
in Pusa, New Delhi.

TALL XII class members and
Indian Dancers.

Cattle and buffalo at the
National Dairy Research Institute.

Hand harvesting at the Directorate of
Wheat Research in Karnal, Haryana.

Manual labor thrashing wheat
in Ludhiana, Punjab

Government housing for retired cattle.

Manure storage for winter heating and cooking fuel.

Women in rural village with TALL XII class members.

Plant Breeding and Genetics Research Institute.

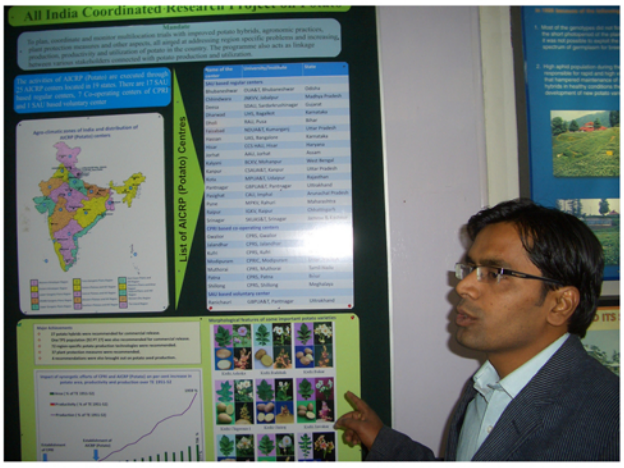
Borlaug Institute for South Asia (BISA)

Dr. Jim Mazurkiewicz at the house of Charanjit Singh Gill (photos of Dr. Norman Borlaug in the background.)

Inspecting harvested wheat and corn fields in Punjab.

Mural inside the Sikh Temple in Punjab region near Avtar Farm.

Adani Agri Logistics (AAL) Grain Storage Facility.



Potatoe Research Institute - Shimla

Shimla mountain view on the Himalaya Mountain Expressway.

TALL XII class member saddling a yak.

Dr. Jim Mazurkiewicz with the Vice Chancellor and Dean of Gujarat.

Research lab at Anand Agricultural University

Livestock breeds of India.

Amul milk processing plant and candy manufacturing product display.

Cotton seed storage and warehouse.

TALL XII class members working together to start the bus.

TALL XII class standing in front of the Taj Mahal.

Friday afternoon, April 27, 2012

Tanya Foerster and Ernest Bailes

TALL XII started out in Houston will all smiles and reunion hugs as we all gathered in the airport to begin our adventure to India.

Amber "Brady" Miller, Mike Metzig & Jason Pooley

After asking several classmates to share their expectations for our upcoming trip we received the following replies.

Scott Piercy: "Going someplace new and different. I am kind of looking forward to the food, believe it or not!"

Mike Metzig: "Seeing the countryside and how it compares to the U.S."

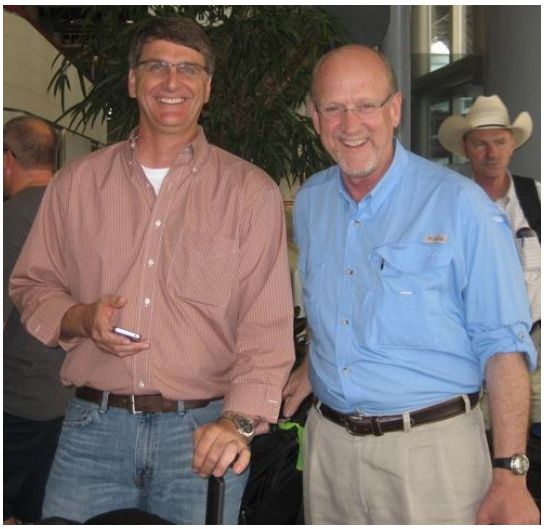
Darren "Peaches" Rozell: "I'm excited but a little nervous about getting sick."

Kip Thompson: "I'm looking forward to seeing their production practices."

Kim Ratcliff: "My take away will be the different culture."

Bruce Fleming: "I'm looking forward to experiencing different cultures and learning about agriculture."

Ilona Schilderink: "I have no expectations and will take it all as is comes. I'm very open-minded."



Jim "Superman" Hunt, Scott Piercy & Dr. Jim

It seemed most of us had similar expectations and shared both apprehension and excitement. We also compared how many snacks we packed and what medicines we all had which proved to come in extremely handy later in our trip!

We had over three hours to kill and spent most of it catching up with each other and eating all the American food we could ingest. With one stop in Dubai, we traveled over 17 hours to our final destination of New Delhi, India. The Emirates airline provided very hospitable service and we were as comfortable as you can be in Economy class!

We finally made it!

Saturday, April 28, 2012 (10:10 pm – 8:00 am)

Amber Miller and Bruce Fleming

Dubai – Delhi

The flight from Dubai to Delhi was non eventful. Almost all TALL members had eaten their last “beef” meal by eating at Burger King in the Dubai airport. Therefore everyone was full and sleepy for the flight from Dubai to Delhi.

Saturday morning, April 28, 2012

Amanda Dyer and Michael Goudeau

Most of the class was sacked out by this part of the plane ride. We were told the best strategy to avoid jetlag was to sleep as much as we could on the way to India and stay awake as much as possible on the way back to the U.S. Of course, this was easier said than done as sleeping in a chair without a way to lean back much or prop your feet up is not the easiest feat in the world. After 17 hours of traveling though, it became a lot easier.

Dr. Jim was restless and had ventured to the back of the plane a couple of hours before. He wound up staying back there for several hours during the flight talking with the flight crew. Pretty soon a small crowd of the TALL class had congregated back there for social time. Dr. Jim came back and said that he had had a conversation with the crew dispelling some of their fears about food safety, particularly beef, as the crew had just heard about a mad cow case in a dairy cow in California. Dr. Jim explained that this was one cow out of tens of millions of cows within the U.S. The cow was never close to being put into the food supply chain. He explained that our country has the best safety controls in the world in place to prevent any unsafe meat from entering the food supply. Props to him for never missing an opportunity to be a beef advocate.

The flight attendants enjoyed our group so much that they packed us bags full of fruit and chocolate to take with us to India. This was probably the best gift we could ask for as we had heard it was important to bring our own snacks to India (especially ones that did not have curry on them). Our own Kip Thompson was kind enough to offer jerky packages to our class. Knowing that this would be our only chance to eat beef for the next 2 weeks, most of us took full advantage of purchasing several packages for the trip. All proceeds went to the TALL XII fund for graduation.

Each of our seats had a personal TV screen where we could watch a movie, listen to music, play games or track the progress of our trip. It was eerie to be flying over the Middle East and see the names Islamabad, Tehran, Bahrain and Baghdad along our route. It was a surreal feeling to know that we were that close. I know I was silently

praying that we didn't have any plane trouble during those few moments I ventured a look!

Saturday afternoon, April 28, 2012
Marsha Shoemaker, Kip Thompson, Darren Turley

On flight – Tonya obtained quotes on our thoughts/expectations.

Generally all were catching up on sleep and rest from their busy weeks leading up to the international trip. In discussions with other classmates, everyone was excited but also nervous about what India held in store for us.

Saturday evening, April 28, 2012
Kimberly Ratcliff and Jim Hunt

At this point most of the group was sound asleep, possibly for the second round of the 14 hour, 55 minute scheduled flight. I was awake during a good portion of that leg as I my 6'4" frame was a bit cramped by the Emirates seating set up. Michael Goudeau and I talked a lot with the flight crew. They represented 16 different countries. That was probably the most interesting thing about flying Emirates, that they hire flight crew from around the world. They are generally in their early twenties and by working for a few years on the airline; they can save enough money to get a great start in their home countries. While they are keeping up with their extremely full flight schedules they don't have a great deal of time for spending what they make. I recalled that from my attempts in the mid 1990s to do some emergency egress training for the Dubai based airline crews. They wanted what my company offered, but they simply didn't have time to take a day of rest away from the crew members. This crew flying from Houston to Dubai would have 48 hours off and then likely pick up a day or two of local Gulf Cooperation Council country flights before taking on another long haul. Dr. Mazurkiewicz and I also spent some time talking about this time of the day, as he was suffering a bit of lower back pain from the less than roomy seating arrangement. As earlier mentioned, most of those who had had apprehensions about this long flight were now sound asleep.

Sunday morning, April 29, 2012

Scott Taylor and Linda Ryan

After eighteen hours in the air, we arrived in Delhi in early morning hours of Sunday, April 29. The group was greeted at the airport by Raj Kapoor, Ashish Sabharwal, and Rohit Sachdeva. We boarded our bus for the Hotel Ashtan in Delhi. After a lengthy check-in process, we settled into our rooms at 5:00am. We caught a short nap before boarding the bus for a visit to the Assocom office and site seeing in Delhi.

The city was quiet upon our arrival during the middle of the night. As the sun came up on Sunday morning, the quiet and calm quickly turned to hustle and bustle that is life in Delhi. We were all shocked at our first glimpse of India. The masses of people that filled the streets were quite amazing. The sites, sounds, and smells quickly overwhelmed one's senses.

The alley across from our hotel in Delhi

We arrived at the Assocom office where we were greeted by a most gracious staff. Upon entry into the office, we received a dilak (red dot on our forehead). The dilak is a sign of respect and to welcome us to India. We also received a leis of flowers. Raj went over the agenda for the next twelve days. We were pleasantly surprised to have Pizza Hut pizza for lunch at the office before we set out for a tour of the city.

Sunday afternoon, April 29, 2012

Ilona Schilderink and David Waggoner

For lunch, our TALL class was provided pizza while being hosted at the Assocom India office in Delhi. We enjoyed having a taste of "American" food.

Following lunch, we were provided a sight-seeing tour of the following monuments and historical sights in Delhi:

Jama Masjid - means "World reflecting mosque". It is the principal mosque in Delhi, India. The structure was commissioned by the Mughal Emperor Sha Hahan (the same builder of the Taj Mahal) in the year of 1644. The mosque was completed in the year 1658. It is the largest and best-known mosque in India. The mosque was the result of the efforts of over 6,000 workers, over a period of six years. Approximately 25,000 people can pray at the mosque at one time. The mosque has a large paved rectangular courtyard, which is nearly 75 meters by 66 meters in width. Under the domes of the mosque is a hall with seven arched entrances facing the west and the walls of the mosque are covered with marble. The mosque was truly a remarkable structure to see.

The Red Fort - the Red Fort is a 17th century fort complex constructed by the Mughal emperor Shah Jahan, and served as the residence of the Mughal Emperors. The fort served as the capital of the Mughals until 1857, when emperor Bahadur Shah Zafar was exiled by the British Indian Government. It was designated as a World Heritage Site in 2007. The fort covers a total area of about 255 acres. Construction on the fort last from 1638 to 1648. The fort is on of the important building complexes of India which encapsulates a long period of Indian history and artistic treasurers. Even before the fort was identified as a monument of national importance in 1913, the Indian government began efforts to preserve and conserve the Red Fort for posterity. We were informed that the Red Fort is one of the most popular tourist destinations in Delhi, attracting thousands of visitors every year. The fort is also the site from which the Prime Minister of India addresses the nation every August 15th, the day India achieved independence from British rule. At one point in time, more than 3,000 people lived within the premises

of the Red Fort. However, after the Sepoy Mutiny of 1857, the fort was captured by Britain and the residential palaces were destroyed.

The Red Fort, New Delhi

India Gate - from a distance, we drove past India Gate, which is the national monument of India. The India Gate is located in the hear of New Delhi. The structure was built in 1931, and was originally known as the “All India War Memorial”. It commemorates the 90,000 soldiers of the Indian Army who lost their lives while fighting for the Indian Empire during World War I.

Rajghat - this structure is a memorial to Mahatma Gandhi. It is a black marble platform that marks the spot of Mahatma Gandhi’s cremation on January 31, 1948, a day after his assassination. The memorial is located on the banks of the Yamuna River in Delhi. The memorial has the epitaph “He Ram”, which means “O God”, the which are believed to be last words uttered by Gandhi.

Sunday evening, April 29, 2012

Dave Lilley and Mark Kubecka

5:00 on Sunday Evening found us at an Indian “Emporium” where we were allowed to browse and view a whole host of Indian Products and Goods including furniture, art, jewelry, rugs, religious items and more.

In retrospect, it really was the finest example of what Indian Artisans had to offer tourists and locals alike.

However, we were all still VERY “Road Weary” and just did not have the energy necessary to fully appreciate what this particular stop had to offer us and we (Dave and Mark) both regret not having taken more advantage of what this opportunity really had to offer us.

By 6:00 our Coach had delivered us to what we would come to realize as the absolute best that Delhi and India had to offer their citizens in the form of “Western” styled Retail by visiting what was simply called the “City Mall”.

This facility was a real testament to what the Indian Economy has been able to achieve in the last decade with Western Styled Retail Development, Construction and Retailing Facilities.

Dave and Mark are neither one “shoppers” by nature but quickly observed that this facility would rival any “Mall” anywhere in the United States. In fact, it ultimately reminded us of any Mall that you might visit in the US with modern, hip clothing retailers, restaurants, Department Stores and kiosks selling everything from Mobile Phone Service to Ear Piercing and Henna Tattoos.

Young Persons filled the building socializing and browsing and the feel of the facility was decidedly “Western”. This was something that our Host/Guides were particularly proud of as an example of the progress that their culture was making.

After a quick lap around the Mall, our Hosts treated us to our first real stab at Traditional Indian Dining at the “Punjab Grill”.

By Indian standards this really was a fine dining experience and we would come to more fully realize this (and appreciate it) in the days ahead.

Our Host (Raj) ordered for the group and exposed us to the Rices, Breads, Chicken with Sauces, Lentils and Chickpeas that would soon become the basis of our daily diets.

While timid at first, our entire Group quickly let go to our adventurous sides and sampled most everything that was offered.

Nearing the 8:00 hour, fatigue was surely setting in across the entire Group and after a quick stop at Baskin Robbins for a familiar treat we returned to our Hotel for much needed rest and recovery. It is safe to say that each member of the group was in bed, asleep by 9:00 on this night.

Monday morning, April 30, 2012

Mike Metzig and Garry Merritt

After touring some of the sights of India on Sunday, we began Monday morning at a soup kitchen in Delhi called the Food Relief Foundation. We had already seen poverty and trash in every part of the city the day before, but when we unloaded the bus to begin the day's journey, we were literally in the middle of trash and filth. There were pigs eating trash and conditions we have never been around.

We met with Dayalu Govind Das and, the Senior Manager-Resource Mobilization of ISKCON Food Relief Foundation. He walked us down a very narrow street towards the facility that we would be touring and I know many of us felt a little uncomfortable as it was the worst neighborhood we had ever seen. The smell of garbage and many people that were very poor were on the street, along with cattle roaming along beside us. Our group must have looked like aliens to the natives as we drew many stares from the locals.

Mr. Das was very gracious and seemed excited to share what this organization does. It is a Mid Day Meal program that began in 2003 with the support of the Government of India. There are 27 kitchens like this one across India whose purpose was to provide a least one good meal to children that attend schools. Since its inception, the program has greatly increased the number of children attending schools, because for most of

them, it is the only meal of the day. It began feeding 500 children in 2003 per day to over 400,000 children now with all 27 kitchens. They run two shifts in a 24 hour period and had 31 delivery vehicles to take the food to the schools in the area from this one location. We had a hard time understanding our hosts, but I believe they said that they feed 25,000 people from this one location each day.

The meals they provide from this kitchen are wheat based and rice based and provide around 450 calories and 18 grams of protein per meal. The rice and wheat are received from wholesalers to keep the cost down and allows the kitchen to provide a meal for about 5 rupees per child.

The program seems to be successful as they stated a 41% increase in school attendance and they are hoping that they can help increase the number of kids that graduate. Today, 9 out of 10 kids drop out before the 10^{th} grade in India.

On our way back to our bus, a few of us found two small classrooms of kids in school. Wow. No windows or doors and no electricity, yet the children were dressed in uniforms and were excited to see us. I realized that they don't know anything outside of their daily surroundings and therefore don't have anything to compare to like we do, and they were just as happy as we are in our country.

Our next stop was to a Hindu temple. This facility was very clean and well taken care of, as were all of the temples and mosques we went to during our stay in India. It was a place where we did not have to step on or over trash. The people were very friendly and did not mind us coming through as they were worshiping. Hindu is the largest population in India.

Monday afternoon, April 30, 2012

Jason Pooley and Scott Piercy

After visiting the Iskcon Food Relief Foundation that morning, we then traveled to the Indian Agricultural Research Institute (IARI) at the Pusa Institutional Area in Pusa, New Delhi. It was at the central library that we met with the director and other officials to engage in an interactive meeting. The director, H.S. Gupta, provided us with a brief history of the PUSA institute (as it is popularly called) which is a premier institution for agricultural research, education and extension in India. Established in 1905 at Pusa Bilha and then shifted to its present location in Delhi in 1936, the institution has witnessed over a century of improvement primarily spearheaded by the Green Revolution the country experienced during the 1970s. This institute prides itself in inspiring leadership in agricultural research, education and extension that has been a huge contributor to attaining and sustaining India's food self- sufficiency. Being one of the largest research facilities in the world, IARI gained the status of a deemed university in 1958.

As the flagship institute of the Indian Council of Research (ICAR), IARI is the apex of R & D organization in India. Through a network of 20 divisions, 4 multidisciplinary centers, 8 regional stations many projects for the improvement of India agriculture are conducted. IARI conducts both basic and strategic research that includes major accomplishments in crop improvement, crop protection, and crop management technology as well as the transfer of technology.

Crop improvement at IARI has developed hundreds of superior and improved wheat varieties which provide a stable and sustainable food product for India. Pusa varieties account for more than one third of the wheat production annualizing more than Rs 2500 crore. A crore equals 10 million. IARI also evolved the first semi-dwarf high yielding aromatic basmati fine grain rice. These basmati varieties now account for 80% of the country's current basmati rice export annually. The director listed several agricultural commodities important to India which included grains, vegetables, fruits and milk. He also cited that they will continue to have huge future requirements looking ahead to 2020.

There was an excellent opportunity to ask questions at the end which included:

- A discussion of biodiesel and bio-energy
- The ability and effectiveness of disseminating information in a large country
- The struggle of the average age of farmers and how important it is to get younger people into agriculture
- Overregulation and the involvement of animal activist groups
- India being a net importer for first time in history and the priorities of products and the decision points on export amounts and qualities.
- Research on GMOS
- India's infrastructure as yields improve, each state's and government's response and the need to develop silos
- India's growth in drip irrigation and the available subsidies

Monday evening, April 30, 2012

Jimmy Schulz

Sunday afternoon we meet at one of the better restaurants and conference centers in Mumbai. As we were entering the conference center a man drove up utilizing the national form of transportation “motorcycle” and parked at the entrance. It was apparent he was not a native to India; he happened to be our keynote speaker for the evening, the agricultural attaché attached to the U. S. Embassy, Thom Wright. After introductions he went to the podium with suit and tie and prepared to address our group. Before he got started he received a little opposition from TALL members on the formality of his presence, which he took to heart. After shucking the jacket, tie and loosened his shirt collar he pulled up a chair, kicked back and gave us one of the more insightful discussions on life and customs in India. One of the more eye opening tidbits of info he provided us with was where do all the sacred cows come from that walk the streets of every city in India. Mainly these cattle and water buffalo are non-productive cows and bulls that are turned lose from dairies due to them no longer being able to generate revenue and the farmers don’t want to feed them if they are not producing revenue. Because cattle are sacred in India they certainly are not slaughtered there. But interestingly on the border of Bangladesh and India you do not see as many orphaned cattle walking the streets, the Indians will herd the cattle into Bangladesh and sale them there for slaughter, they are not as sacred where there is a market. The closest thing to beef to be found to eat in India would be at a 5 star restaurant located in the larger cities where they may serve water buffalo meat which is not considered a “cow”. Many of the non-productive cattle are also sent to retirement homes which resemble a large feedlot and are feed through government programs and donations to live out their lives and be buried when they pass on. You do not think of India as being a big cattle industry but there are over 300 million head of livestock made up of 1/3 buffalo, 1/3 local mixed cattle and 1/3 dairy cattle. Most dairies are made of 5 to 10 head of cows. India is the largest exporter of beef which would be the export of buffalo. Even

though the vast majority of Indians do not eat meat, with maybe the exception of chicken, the meat processing industry in India is on the rise and a lot of money is being invested in it. With 1.2 billion people in India the Indian government understands the importance of farming and food availability. Indian farmers are heavily subsidized by the government. They provide water and electricity subsidies as well as heavy subsidies on fertilizer and other inputs. The government also mandates a certain amount of rice acres to be farmed to the exclusion of other maybe more needed crops such as corn to provide feed for livestock. There concern is to at least keep people fed even though most live in poverty but this practice of over planting acres in rice leads to a high percent of the rice and wheat rotting in the fields because they are producing so much more than they can consume or store. Average farm size in India; three and one half acres. After discussion with Thom we were served one of few really nice dinners, open bar and then entertained by Indian native dancing girls whom our own girls joined in with towards the end. I thought our girls were better than theirs.

Tuesday morning, May 1, 2012

Tanya Foerster and Ernest Bailes

Following a breakfast full of variety, we checked out of what turned out to be one of the nicer hotels we would experience, and traveled to the 3rd National Grains Conference. By this point, we were becoming more accustomed to the fast-pace, no rules driving while witnessing masses of people going here and there or sleeping on the sidewalks. Not to mention free-roaming cattle just eating their morning snack from piles of garbage on the side of the road.

The grains conference kicked off late but by day three, we already figured out scheduling was not as much of a concern as it was for our first seven TALL sessions. Needless to say, this equally annoyed Dr. Jim and the other clock watchers in our class!

Grains Conference Banner

We learned that the Indian culture is very rich in formal introductions and tradition. Dr. Jim was included in the formal lighting of the lamp and the Indian delegation presented gifts to all of the speakers.

Mr. G. Chandrasekhar provided a big picture overview of global agriculture and India's position. India expects a big rebound in agricultural commodities in 2012. The prices are favorable and they look to improve input management. The anticipation of the monsoon season fast-approaching is one key factor in their outlook. If India's agriculture can't keep up with the anticipated demand and a four percent average growth rate, they will have to rely on imports. They do believe that agriculture has the potential to boost the Indian economy and become more sustainable.

Dr. H.S. Gupta discussed the second green revolution and noted that the global food production must double by 2050 to level off hunger. India has strong food grains production and maize (corn) is rapidly increasing through cross hybrids. Food security is a big concern with the current poverty levels in India. Challenges include productivity, income and natural resource management. New initiatives in technology development, investments, soil and water conservation and farmer training should help improve outlook.

Mr. S. Sivakumar discussed the government's role in procurement, storage and farm investments and enhancement plans. Our own, Amanda Dyer, presented a global outlook on commodity prices and represented our TALL class very well.

Amanda Dyer at Grains Conference

Tuesday afternoon, May 1, 2012
Amber Miller and Bruce Fleming
National Grains Conference

Sanjay Kaul, spoke about Indian Agriculture Policy. Indian farmers want and expect the government to pay for all inputs and give them a reasonable rate of return, yet they want a policy that "does not distort markets." Mr Kaul acknowledged that the current policy does not engage the private sector because the government is the only procurement option.

BC Gupta-Secretary of Food and Public Distribution for the Government of India, gave an interesting perspective from the government point of view. What really became clear was the power and influence of the Indian government and their reluctance to give up this power in return for any increased efficiency in agriculture.

Amanda Dyer-TALL XII, gave an interesting presentation on Global/US grain production coupled with supply and demand. It was during Amanda's presentation that the moderator began giving notice that all presentations should be restricted to 10 minutes. At this point the conference was way behind schedule.

Sunil Sinha gave a presentation regarding the Indian economy and outlook. He noted that Indian Ag is highly dependent on monsoon, but other sectors of the economy are not. He also stated that the Indian rupee has been the worst performer in the Asian region.

S. Datta spoke about the way forward for Indian Ag. He summed up the challenges as land availability, cropping intensity, the need to increase yields, and climate change.

Bruce Fleming – TALL XII gave a presentation on grain storage practices in the United States focusing on types of storage, and the farmer storage decision.

Ravindra Chibbar gave a talk on biotech and genomics strategies. He stated that India is about to be the world's largest country, and for the first time there will be no concern about having enough food, but what kind of food. He believes we can modify certain characteristics or genes of plants to impact human health, such as modifying the starch structure to impact diabetes.

Dr. Indu Sharma talked about wheat production prospects. He noted that wheat varieties and protein aspects vary based on region, and that certain regions have problems that need to be addressed.

Unopom Kausik spoke on edible oils and the potential for oilseed production increasing. Types of edible oils include Rapeseed oil, Palm oil, Mustard oil, and Soy oil. Imports of oils will rise dramatically due to increasing demand.

G.K. Sood presented wheat and sugar. He restated that government is the only market for wheat. Indian is the 2nd largest producer of sugar and the largest consumer in the world, although their consumption per capita is relatively low. Sugar cane is grown mainly in the South part of the country and there are presently 550 operating sugar mills, although most are inefficient.

Bal Anand-Cargill India, gave a general scenario of grains and oilseeds. He gave production numbers and the need for imports. Within 10 to 15 years Indian population growth will outstrip their ability to produce enough grain and oilseeds.

Amit Sachdev – India rep on U.S. Grains Council gave information on products made from corn. He stated that high freight costs have contributed to inflation with corn, and that currently 65% of corn growers are using hybrid seed.

Suresh Itapu – Grain based novel foods spoke about consumer desires and the strong belief in a relationship between food and health. There is always a disparity between ‘healthy food’ and ‘convenient food’.

MK Krisna talked about the role of soybeans in sustainable nutrition security. He believes Indian needs a dramatic increase in soybeans grown. He indicated that there are more grams of protein per acre/hectare in soybeans than any other grain crop.

G. Chandrasekhar gave the concluding remarks which were highly received and perhaps the highlight of the day for the TALL XII class.

Dr. Jim lights the ceremonial torch to begin the Grains Conference

The Grains Conference featured many organizations and speakers

Tuesday evening, May 1, 2012

Amanda Dyer and Michael Goudeau

After the Grains Conference we had a three hour bus ride to Karnal, Haryana. We found that rural India was much more aesthetically pleasing than urban India. The wide open spaces and farms along the highway I think made us all feel a little bit more comfortable. I tried to stay awake until dark because I wanted to take everything in. Just before we left for India, I had met with a friend whose parents had traveled to India. I told her "The poor [village] people are more colorful and more full of life." And it was true… the trucks are colorful, the villages are colorful, the women's saris are colorful. We stopped at a station/market to get drinks and use the restroom. I had just woken up, so it all felt very surreal--so many colors and bustling people. There were vendors and shops with sparkly shoes and knickknacks. I wish we had time to observe longer but I think we were all too tired and overwhelmed to process it all. We got stares. It was like being in another world, like a picture from an old movie or something. I am really excited to see what the daylight has in store tomorrow. We are at the Jewel's hotel tonight. It is just ok. They had dinner for us... the usual chicken curry, rice, veggies, buffalo cheese, lentils and naan. They had some sort of lemon grass soup. It was clear with bits of lemon grass I guess. Kinda salty lime tasting; it was interesting, I liked it. That and the lentils were good; the rest was questionable. A few of us went to the hotel bar after. It was a pretty nice bar with trendy tables and red chairs and even had trendy drinks like we'd see in the states. We went to bed tired, but eager to see what tomorrow would bring.

Life is quieter and more peaceful in the rural areas.

Wednesday morning, May 2, 2012

Marsha Shoemaker, Kip Thompson, Darren Turley

Before departing from the hotel, the day started off with some excitement. As locals drove slow or even times stop to stare at us while standing on curb outside hotel, Michael convinced a local to give him a ride on a motorcycle around the block. Also Kip and Dave took local transportation (rickshaw) to the institute.

Wheat Research

India has a population of 1.2 billion and is growing. The country recognizes that their emerging population needs a stable food supply. During 1948, the total wheat production was only around 6 million tons with problems in their wheat varieties that were very tall, prone to lodging and diseases. While efforts were made, the production only increased to 12 million tons in 1965. The green revolution in India consisted of a series of research, development and technology transfer initiatives between 1940-1970 that's goal was to increase agriculture production needed to make India a self-sustaining in their food resources.

That is where the Directorate of Wheat Research began. The research has developed and released around 380 varieties of wheat and around 75 varieties of barley that were based on wheat resistant to diseases, various stresses and development of the new dwarf plant type. The research enabled India to become the second largest wheat producing country in 1988. The production in 2000 was a record of 76 million tons.

While at the research facility the class toured the museum, laboratories and facility research farm. The farm was currently harvesting wheat in the various research plots and fields.

While I have to say, the field tours were our favorite. This is was the first time we were able to see how the fields we had been driving by were harvested. We asked about mechanical harvesting. The researchers told us that mechanical equipment is expensive and the labor force is great; therefore, the majority of the small farmers still use manual labor to do all farm work. The tour gave us a better insight to why the farms are small.

Wednesday afternoon, May 2, 2012

Kimberly Ratcliff and Jim Hunt

Professor A.K. Srivastova provided a brief history about the National Dairy Research Institute. The Institute is the India's premier institute for dairy research and in 1989 the institute was accorded status of Deemed University. This status allows the institute to further strengthen the academic programs and accept international students on a competitive nature. The institute offers Master and PHD degree which specializes in 13 subjects.

With 1384 acres the institute is able to study a broad range of livestock including goats, sheep, camel, Mithun, yaks, pigs, buffalo and cattle. Our tour concentrated on the Buffalo milk production due to their diversity as draft, meat and dairy animals. The world's first cloned buffalo named Samrupa was developed by the Institute. Unfortunately the calf did not survive more than a week, and died due to some genetic disorders. The scientist created another cloned buffalo born on August 22, 2010 named it Garima. Dr. Srivastava said that "this cloned buffalo calf is different from earlier clone calf because, in this case the used donor cell was embryonic stem cell". This technology could go a long way in helping for faster multiplication of superior buffaloes in India. He said that India has the world largest population of buffaloes which contribute to about 55% of the total milk production in India, but the percentage of high quality buffaloes is very low and there is an urgent need to enhance the population of the elite buffaloes. He further stated that there is a shortage of good bulls and the technology of cloning will decrease this gap between supply and demand of breeding the bulls in the shortest possible time.

It is estimated that India has over 70 million cattle farmers who have 2 to 4 milk animals which provides over half the world milk average. The Institute has a feed yard and milking facility which undertakes research, teaching and extension

activities towards dairy development in the country. They concentrate on research that will enhance animal production and also to develop cost effective technologies for the benefit of the teeming millions. The institutes also undertake extension programs for transferring the knowledge from the laboratory to the farmers' fields.

Fun facts during Tour:

- A Buffalo's average milk production is 20 Liters (approximately 5.2 gallons) with 4 to 5 percentage fat per day. The average in USA can range reach around 15 gallons per day.
- Buffaloes dry period is over 100 days due to hot summers
- There are some crossbred cattle in India. Some are paid on percentage fat content for cows 22 Rubies ($0.40 US) and buffaloes 35 Rubies ($0.64 US). The buffalo milk is superior to cow milk in terms of important minerals but the cow can produce more milk output.

Our next stop was Directorate of Wheat Research whose mission is to enhance the productivity and profitability of wheat and barley on ecologically and economically sustainable basis. Since 1965 the research center has produced 382 varieties of wheat and 7580 variety of barley. The research facility has two centers which currently have over 100 different varieties of wheat and barley which concentrate on newly evolved high yielding varieties. The DWR has a seed program which provides producers with quantity of pure seed of the important commonly used varieties. After the seed is approved by the research facility it is released in small quality to producers who then multiply the seed production.

Fun Facts during Tour:

- Barley is only grown in the spring. They produce about 3-4 metro tons per Hector
- Wheat takes about 120 to 150 days to grow (October to April 15th)

- The straw from the wheat is used for livestock forage
- Cotton season starts May and June. Harvest begins in south and works its way to the North due to climate change.
- The research lab is looking for ways to enhance iron, zinc and micro nutrients available in wheat when consumed.
- 19 million tons of wheat expect this year
- Heat stress effect wheat product more than any other disease. Wheat can tolerate 32 degrees if the temperature decreases just 1 degree it and decrease yield by 4%.

Wednesday evening, May 2, 2012

Scott Taylor and Linda Ryan

After interesting stops at the Dairy Research Institute and the Directorate of Wheat Research, we left Karnal, Haryana for a long bus ride to Ludhiana, Punjab. We quickly realized that much of time in India would be on a bus, traveling on roads that were grossly unable to handle the amount traffic on them, and full of holes and bumps. The scenery was quite interesting though as we began to move into more rural parts of India.

Many in the group needed a break from the jostling of the bus so we stopped alongside the road and ventured into a local village. We encountered families and many young children. The locals were very welcoming and enjoyed posing for pictures with us. We were like "rock stars" in the local village.

"The hospitality was enormous. They wanted to show us their way of living. I had the brief chance to see inside a house, a store, and a mosque. I loved to interact with the farmers there. It was great to experience the pride of their young people in becoming the next generation of dairymen. It was a great stop!" - Ilona Schilderink

Kip Thompson returned to the bus to get candy for the local children. They swarmed Kip as he gave them each candy. It was a worth while break in our otherwise long evening of travel.

We got back on the road and arrived at the Parker House of Punjab Agricultural University, where we would stay the next two nights. Our arrival was later than expected but dinner was waiting on us. We quickly ate and made our way to the room. The accommodations at the Parker House were LESS THAN IMPRESSIVE! Two nights here was two nights too long.

Thursday morning, May 3, 2012
Ilona Schilderink and David Waggoner

We began the morning tour with a visit to Pun Jab Agricultural University. We were provided a briefing by the Vice Chancellor, and several of the Department Heads and Deans.

The university was established in 1962 at Ludhiana using the same pattern as the land-grant system in the United States which integrates teaching, research, and extension programs. The university campus covers an area of 1510 acres and has approximately 4,615 acres of land at outlying regional research stations and seed farms located within six different climatic zones within India. The faculty members and graduate students have won numerous national and international awards and honors. We learned that the university is widely acclaimed as the "best agricultural university in Asia", due in large part to its distinguished status at the national and international level. The university has played a critical role in ushering in the "green revolution" in India and has the distinction of winning the first Best Institution Award of the Indian Council of Agricultural Research in 1995. The university offers five bachelor degree concentrations, 51 masters, and 42 doctoral programs throughout fifty academic departments.

The researchers we visited with are committed to the improvement in productivity and profitability of India agriculture and the allied sectors. They hope to achieve their goals by adhering to the following principles: 1) Provide quality education in the areas of agriculture, veterinary science, agricultural engineering and allied fields; 2) Undertake basic, applied, and adaptive research to seek appropriate solutions to emerging problems in agriculture and to develop relevant technologies to improve socio-economic conditions of the farming communities; 3) Develop an effective mechanism for the transfer of technology to the farmers and agricultural organizations (including cooperatives) through different extension programs with a focus on how to improve agricultural productivity and economic conditions in rural India (this will be a huge

challenge!); and 4) Develop appropriate technology for supporting the growth of agro-based industries.

During the meetings, and throughout our tours, it became quit evident that environmental issues in India are many. Air pollution, water pollution, garbage pollution and wildlife natural habitat pollution challenge India. The situation was worse between 1947 through 1995. According to data collection and environment assessment studies of World Bank experts, between 1995 through 2010, India has made one of the fastest progress in the world, in addressing its environmental issues and improving its environmental quality. Still, India has a long way to go to reach environmental quality similar to those enjoyed in the United States. Pollution remains a major challenge and opportunity for India.

Some believe economic development is leading to environmental issues in India. Others believe economic development is key to improving India's environmental management and preventing pollution in India.

Major environmental issues are forest and agricultural degradation of land, resource depletion (water, mineral, forest, sand, rocks etc.), environmental degradation, public health, loss of bio-diversity, loss of resilience in ecosystems, and livelihood security for the poor.

The major sources of pollution in India include the rampant burning of fuelwood and biomass such as dried waste from livestock (“cow patties”) as the primary source of energy, lack of organized garbage and waste removal services, lack of sewage treatment operations, lack of flood control and monsoon water drainage system, diversion of consumer waste into rivers, cremation practices near major rivers, government mandated protection of highly polluting old public transport, and continued operation by Indian government of government owned, high emission plants built between 1950 to 1980.

We learned that India's water supply and sanitation issues are related to many environmental issues. Environmental issues are one of the primary causes of disease, health issues and long term livelihood impact for India.

In 1985, Indian government created the Ministry of Environment and Forests. This ministry is the central administrative organization in India for regulating and ensuring environmental protection.

Air pollution, poor management of waste, growing water scarcity, falling groundwater tables, water pollution, preservation and quality of forests, bio-diversity loss, and land/soil degradation are some of the major environmental issues India faces today. India's population growth adds pressure to environmental issues and its resources.

Environmental issues in India include various natural hazards, particularly cyclones and annual monsoon floods. Several researchers we visited with estimated that over 60% of cultivated land suffers from soil erosion, water-logging, and salinity. It is also estimated that between 4.7 and 12 billion tons of topsoil are lost annually from soil erosion.

Thursday afternoon, May 3, 2012

Dave Lilley and Mark Kubecka

The afternoon portion of our day began with a visit to the Punjab Agricultural University (PAU) Demonstration Fields. These fields line the main road throughout the university and demonstrate the field studies being conducted at the school. The primary plots of this season were wheat fields, but there was also triticale, barley, and sunflowers being grown.

PAU is one of the major contributors to new wheat variety releases throughout the country. One of the primary focus areas recently has been shorter maturity varieties that can follow the longer season cotton crops. A special note is that all plots at the University are irrigated with Ground Water, but this could be an issue within the country in coming years as groundwater tables have been steadily falling.

One interesting crop trial was sunflowers which are grown for their oil. Parrots are a major nuisance to this crop and the University is working with varieties in which the head turns downward as it reaches maturity. This helps prevent the birds from feeding on the seeds.

After these University Field Tours we broke for lunch at KFC. The Class was certainly happy to have a break in the meal routine and to be eating something which we were more familiar. Even to the members of the Class that may have normally turned up their nose to this choice in the US, it was a welcome change on this trip. Of course, as with most all TALL meals with Dr. Jim, there was ice cream to be had afterwards and Baskin Robbins delivered again!

The next stop our Class visited was the Entomology Center and more specifically the Honey Bee Research Area. Italian Honey Bees were brought to the Punjab region in 1976 and now Punjab produces more than 37% of the country's honey production on less than 1.5% of land area. There are 30,000 bee keepers in India and they produce

14,000 MT of honey annually of which most is exported to Germany. Punjab University is a major contributor to bee research and to bee keeper's education. The University holds more than 75 courses for keepers annually.

The Museum of Rural Life of Punjab was our next stop of the afternoon. This museum was built in 1974 and modeled after a museum in Denmark. It was patterned after an Indian home from 200-300 years ago and contained artifacts that dated back to 1000 BC.

On our final University stop of the day we visited the Department of Farm Machinery and Power Engineering. This stop was much like a US Farm Show might have looked in the 1930's. The machinery was certainly dated by US standards, but was modern marvels from many farmers that are still using animal power to plow fields and hand harvesting. From the Department's stand point, the areas with the most potential for further power development are: cotton harvest, sugarcane harvest, spraying, harvesting of pulses and oil seeds, and rice seedling transplanting.

After finally leaving the University the class was able to get onto a farm and meet a true Indian producer. The first impression certainly did not disappoint. Charanjit Singh Gill is a 4^{th} generation farmer of his family land that consists of 25 acres. When we visited, he was harvesting radish seed. Also growing on the farm were corn, wheat, and alfalfa. Other crops produced at the farm during the second annual growing season are cauliflower, peas, turnips, and rice.

Irrigation for this farm is delivered from 4 groundwater wells. The water in this region has remained strong, but irrigation is limited by the 4-6 hours of electricity that are available each day to run the wells.

In addition to farming Mr. Gill has 2 dairy cows and one buffalo for milk needs of the family. Just a few years back the farm milked over 50 head of animals, but it was not a profitable operation so it was discontinued. Mr. Gill certainly knows what is profitable on

his farm because he keeps a very detailed ledger of every input, applications, treatment, or bit of production that comes from his operations. His “hand written” notes would even impress the most detailed US farmer that uses the latest Computer Programs.

One very interesting aspect of the visit was the fixed dome bio-gas plant that is use to produce gas for the family cooking and home heating. The bio-gas dome was put in place by his grandfather in 1977 and has been in constant use ever since. The plant process is fueled by 3 – 4 buckets of manure waste from the dairy operation daily and some water. The breakdown of the manure releases methane gas that rises in the dome and creates head pressure. The gas is then plumbed into the house for use.

Following the description and view of the gas dome the Class was invited into the family home to demonstrate the burning of the bio-gas and then a cup of afternoon tea or coffee. This visit was truly one of the highlights of the entire trip!

Thursday evening, May 3, 2012
Mike Metzig and Gary Merritt

After leaving the farm of Charanjit Singh Gill, Mr. Gill took us to the nearby Avtar Farm. Two generations of the Avtar family – Mr. Avtar and his 3 sons – farm 80 acres, of which 8 acres are owned by the family and the remainder of which are leased. One of the sons – Jagrag – just came back to India to work on the family farm after studying business in England for 2 years.

The Avtars were farming wheat, mint, organic baby corn, radishes (for seed), carrots (for seed), corn for silage, and beans. They had entered into contracts for the mint, organic baby corn, radishes, carrots and beans before planting. They will sell the wheat to the government at a pre-set price. The Avtars also grow some fodder for the 5 or 6 buffalo cows that they milk. The fodder is cut by hand daily and fed to the animals.

All of these crops will be harvested within the next 30 days and then all of the fields will be planted in rice – which they call paddy. They will get 1 cutting of the rice, which they will also sell to the government at the government's pre-set price.

The Avtars use contract labor to weed the fields by hand. They pay 1,200 rupees, which is about $22 USD, per acre of weeding. The Avtars pay about $700 USD per acre per year in rent for their leased land. After showing us the fields, the Avtars showed us their barn, sheds and spraying equipment. They were wonderful hosts and good farmers.

Mr. Gill then showed us a Sikh temple, which honors the 6th of 10 Sikh gods. This god came to visit this area 400 years ago, and the temple was built 200 years ago. Each of us had to cover our heads in some way – with a scarf or hat – and take off our shoes before entering the temple. Families came to the temple throughout the day to worship, and the temple also had a soup kitchen to provide meals for people who did not otherwise have enough to eat.

The entire experience of spending time at the Gill Farm, the Avtar Farm and the temple made many of us feel a strong connection to these people and their lives. Everyone we

met at the farms and at the temple were warm, kind and generous with their time. They were hard working, faithful men and women doing the best they could to take care of their families and their land.

We then drove back to Ludhiana for dinner in town, followed by a good night's sleep at the Parker House at Punjab Agricultural University.

Friday morning, May 4, 2012

Scott Piercy and Jason Pooley

Friday, May 8, we left the Parker House guesthouse at Punjab Agricultural University and after a quick breakfast at a local restaurant, traveled 2½ hours to Moga in the Indian state of Punjab where we visited the Adani Agri Logistics (AAL) grain storage facility. This modern grain elevator was built in 2007 as a partnership between the government of India and AAL. It is one of 7 facilities across India where AAL stores over 600,000 metric tons of wheat. Traditionally, India stored wheat in bags under poly tarps. In 2000, the government began working to develop elevators for long term storage and the Moga facility is the result. The Punjab produces about 11.1 million metric tons of wheat each year while the entire country of India produces about 70 million metric tons.

We were welcomed to the facility by Mr. Puneet Mehndirata who gave us an overview of the operation. We arrived at the height of the wheat harvest and the yard was full of trucks. The elevator receives grain from about 1,500 local farmers in a 15 km radius of the facility. The elevator can hold 225,000 metric tons of grain and unload over 1,000 trucks per day, each carrying about 5 metric tons. The facility will hold grain for up to five years but the oldest wheat on hand now is from the 2009 crop. Over 80% of the grain is brought to the elevator in bags and unloaded by hand. The remaining 20% is delivered in bulk but that number is growing each year. Each truck is tracked through the unloading process by RFID technology and representative samples are pulled from every load.

When the government decides to distribute wheat, the elevator ships everything out by rail to other parts of the country. They are in the process of developing a more extensive rail system for grain shipments but are currently capable of loading unit trains out of this facility. The mix of modern facilities and very labor intensive shipping methods was fascinating to watch in action.

Friday afternoon, May 4, 2012

Darren Rozell and Jimmy Schulz

After touring a major, state of the art, grain elevator we boarded the bus to take a look at a local Public Distribution Center “PDC” at a nearby village. India’s version of the food stamp program but much more practical than our own. In each village there is located a general store run by the local government where items are sold to villagers based on their income. Small store with just the essentials available to be disbursed to the people in need. Most of this time we spent traveling on the bus, we traveled back to Punjab where we stopped for lunch at three o’clock at the Red Carpet Restaurant, the name was better than the food. Back on the bus, heading for the next stop.

Friday evening, May 4, 2012
Tanya Foerster and Ernest Bailes

After wrapping up our day, it was back on the bus for what we thought was a six hour drive to Shimla. However, it turned into a 10 hour trip with the last few hours being nothing but twists and turns up the Himalayan Mountain Expressway. It would have been nice to enjoy the scenery but the darkness turned out to be a blessing so we couldn't see exactly how steep the drop off was, how narrow the road was or how many head-on collisions we nearly had!

Prior to nightfall on our drive, we did see many wheat farms already harvested or well underway. The countryside was very similar to some parts of Texas but the harvest and other farm equipment was light years behind us.

Farm in the Himalayan Mountains

A week into our trip and we were all wiped out. The many hours of riding in a bus and a jam-packed schedule had taken a toll on us so most of our ride to Shimla involved sleeping or at least trying to. We did appreciate the cooler weather when stepping off the bus to check in our hotel. The cool, crisp air was much different than the 100

degrees plus we had previously experienced. We quickly made it to our rooms and took advantage of a bed for a few hours of shuteye.

View of Shimla from Hotel

Saturday morning, May 5, 2012

Amber Miller and Bruce Fleming

Potato Research Institute

India is #2 in the world in production of potatoes behind China. We discussed the differences between U.S. and Indian Potato's. India has a shorter growing season of 60 to 90 days versus the U.S. growing season of 150 to 180 days. The potato research institute is one of the few single commodity research institutes in India, and to date has helped develop 45 improved varieties. There is no export of potatoes and all production is consumed within the country. The government of India has given the mandate to the institution to double the production of potatoes over the next decade, however the global export market doesn't appear to support any export of potatoes, so R &D is focused on finding new products to utilize the increased production of potatoes.

The Potato Research Center overview

Indian Potatoes are a major food crop

Saturday afternoon, May 5, 2012

Amanda Dyer and Michael Goudeau

We had arrived at the Holiday Home Hotel after midnight the night before so we couldn't see what the area looked like. We knew there was no doubt we were up in the mountains due to the 2 hours we had spent on winding roads to get to our final destination. I personally was confused by this because I just assumed that all of India was flat and hot. Some people woke up in the morning to monkeys screeching outside their windows. When we walked outside we were all taken aback by the scenery in front of us. We were high up in the mountains (even though these mountains were just referred to as the hills of the Himalayas). Houses were built all along the sides of the mountains and terraced farms were all through the area. It was a breathtaking view. Shimla served as the home of the summer capitol during British rule. The temperatures range from -4 degrees Fahrenheit to 88 degrees Fahrenheit so it was a much more desirable place to meet during the hot summers.

We had SUVs lined up for us that morning to shuttle us around. The roads were too narrow for the bus. Our cars were about 30 minutes late so we started off the day in scramble mode as we had several stops to make that day. The morning flew by and before we knew it we were back at the hotel for lunch where we were able to get our daily serving of curry and rice. Our first stop after lunch was a small farm on the other side of the mountain. We loaded the vehicles at about 12:45, figuring that we weren't more than 15 minutes away. We were in the cars for what must have been at least an hour. We just thought that the bus ride was scary; at least in the bus, we were bigger than most other vehicles. Being in the SUVs just intensified the experience. We'd be flying down these roads we swore were one way streets and the next thing we knew there'd be a car around the next curve, so there was slamming of brakes and yelling and one car would back up or squeeze by us with about 2 inches to spare. There weren't guardrails along the roads where there was a straight drop off the side of the mountain. Our drivers had no reservations about passing on curves and using excessive speed while doing it. At one point it started raining and all I could think was

“great, all we need is slippery roads.” I'm pretty sure we’ve never had our lives flash before our eyes so many times, especially in one day. We arrived to the farmer’s place much later than planned. Mr. Gupta, the farmer, was there to graciously welcome us. We walked along the terraces and had a front row view of the beautiful mountainside. Mr. Gupta raised potatoes, apples and peas. His apple trees range in age from 5-70 years. The apples and peas were ruined by a hailstorm this year, which cost him about $14,000 U.S. dollars. He does not use irrigation as the area gets ample rainfall and some snow. He uses family labor and some hired labor when he has to. The land has been in the family for almost 100 years. We weren’t able to find out the exact size of the property as he described it as 5-6 plots, which probably amounted to about an acre or 2. Mr. Gupta had tea prepared for us, but sadly we had to pass because we were already running so late. We hesitantly got back in the vehicles and headed to the Himachel Pradesh University. Along the way, we saw a yak with saddle on it. We decided that, though we were running late, it really was a once in a lifetime experience to get a picture on a Yak. We pulled over and a few members of the group got on the yak for a photo. We left the guy who had the yak smiling from ear to ear after he had received a tip from the group for the pictures. We drove for a while and suddenly the SUVs pulled into what appeared to be some sort of restaurant. We were all confused because we thought that we were going to a university. It was communicated back to us that the drivers needed to eat lunch. We were scratching our heads as to why they didn’t eat lunch during the hour we stopped to eat lunch at the hotel, but what were we going to do about it, so we hopped out to look around. We were happy to see that there were a couple of vendors set up selling pashminas, scarves and wooden trinkets. The stuff was dirt cheap, so both the guys and the girls loaded up on gifts to take home. Dr. Jim ended up buying a knock-off Adidas jacket because it was surprisingly cold up in the mountains. After the drivers finished their meal, we loaded back up in the vehicles and headed toward the university. We didn’t end up getting to the University until after 5:00 and we still had another stop to go. All of us were a little bummed because we were supposed to go see a beautiful Catholic church and eat at the top of the village at 6:00. It was starting to look less and less probable but we were still pretty grateful to have survived the car rides thus far.

Saturday evening, May 5, 2012
Marsha Shoemaker, Kip Thompson, Darren Turley

Himachal Pradesh University

In the Himachal Mountains, the Pradesh University was established in 1970. The university is home to approximately 4,000 students but reaches up to 50,000 students in outreach programs and other college locations. The focus of education and research is looking to fill the need where the jobs are needed in India. The various professors and department heads gave brief descriptions of their departments and research. The dean of studies explained that the university has 29 different departments, distance learning and evening studies. As a government university, the recruitment of faculty is important as well as the research aspect. Each professor has to do research in addition to their teaching duties.

The class asked various questions concerning their university. Interestingly, the college expenses in India are much less than that of the U.S. The government support college has a tuition rate of approximately $100 per year. The professors explained that in India, the parents have the duty to educate their children. The Indian government has the responsibility to make that education possible. While costs are always an issue, they explained that farmers will sometimes sell their land or borrow from family to send their children to college. In return, the children have the duty to service their parents once graduated.

Farm Tour

During our long travels, the class finally made it to our final farm tour. The tour leads us to a poly greenhouse on the side of the mountain. The poly houses are primarily for vegetable and flower crops. The houses assist the farmers in saving their crops from the monkeys/baboons and adverse weather conditions. The Indian government has programs set up to assist the farmers in the construction of the greenhouses. The

government funds approximately 80% of the costs to the farmers. With this assistance, the farmers are in the process of building additional poly houses.

The farmer was part of a society (cooperative) that was developed to group other farmers together to market their harvested crops to areas like Delhi for sales. The society currently has 20 farmers; however, 30 additional farmers are to join. One farmer explained that the society benefits him in that he can produce his flowers and/or vegetables and when combined with other farmers, the marketing costs are much lower.

After the tour, the farmer had the entire class to their home for tea and snacks. Several other farmers in the society were there to welcome the class and hear our different backgrounds. The multiple generation family welcomed us and was extremely gracious.

Sunday morning, May 6, 2012
Kimberly Ratcliff and Jim Hunt

Our day actually started much earlier than previously anticipated. We had figured out that the drive back to Delhi was going to take more than the originally scheduled 6 hours, so we assembled to leave the comfort of our Shimla perch at 4:00 in the morning. Everyone was on time, but not necessarily looking forward to leaving the cool heights of our mountain top retreat. Most of us slept until the sun came over the mountain ridgelines in the distance. Once it was light enough to see, it was difficult for me to sleep any longer. The steepness of the valley walls below was truly breathtaking. These mountain people had chosen not only to live and build their homes perched on the edge, but also farmed the mountain sides on small terraces. The residences were typically lined with several trees with blooms of orange, yellow and purples. I never did get the names of the trees but they constantly provided a painted view. The farms started on the knife edge ridgelines and dotted the mountainsides all the way to the valley floors, a thousand feet or more. Many of them had had wheat, so were just recently harvested. Others bear apple trees, potatoes, and in some cases, small greenhouses. You really had to admire the lifestyle these farmers must live.

Once we hit the flood plain, the temperature had risen and the high population and congested traffic from a few days earlier returned. Along the way we saw several interesting things and began putting together some ideas of why and how it all worked. For example, every 30 to 50 kilometers there was a group of a few smokestacks. Those smokestacks were part of a series of brick firing plants. There would be several acres of bricks laid out, waiting to finish curing so they could be hand stacked in the brick yard, to be later hand stacked on a truck to go to a nearby construction site. I also noticed several brick ovens with smoke rolling out of them and soon figured out that these were producing charcoal from the local timber. In this vast flood plain, most of the timber I could recognize was a species of eucalyptus. It grows fast in this environment and is planted along

roadways by the government as well as in groves by private individuals for the timber. They seemed to use only the wrist sized and smaller branches for charcoal production.

At around 7:45 we arrived in a town called Zirakpur and while writing this up I was relieved that I could actually find it on Google Maps. The significance of this town is that we missed a turn and for me at least, I was reminded of the long journey this day was going to provide. We saw more of the crop production we had seen on our early days traveling out of Delhi, including green fodder for cattle feed and there seemed to be a lot of two story chicken houses all through here as well. We didn't get to stop at any of these poultry production facilities. I am not sure that was a bad thing. We stopped abut 11:00 for breakfast, when were told we were still about 2 to 3 hours out of Delhi and that arrangements were being made for some of us that needed to get a small carryon bag for the train ride. That proved to be a great decision as the Delhi train terminal would later prove.

Sunday afternoon, May 6, 2012

Scott Taylor and Linda Ryan

After eight hours on a bus back to Delhi, we had to stop and “re-pack” our luggage for the train ride to Vadodara, Gujarat. Raj bought duffle bags for those that needed them for the trip. Ashish told us the train could not handle all the luggage that we travelled to India with. We weren’t happy to hear this on the day of our train travel, but once we boarded the train, we quickly saw his point.

We stopped in a parking lot near the train station in Delhi to re-pack. Some local men were playing cricket in the parking lot. Michael Goudeau thought he would give it a try and stepped up to the plate. He did ok with the young inexperience bowler. Once an experienced bowler stepped in to bowl to Michael... game over!

One of the most eye opening experiences of the entire time we were in India occurred at the train station in Delhi. We were trying to “not stand out” in India so as to not draw attention to ourselves. We threw that idea out of the window when we arrived at the station! There were thousands of people there and all eyes were on the 24 travelers from the western world. The pushing and shoving just to get into the station was more than most could handle. Luckily we had a few in our group wearing cowboy hats (trying not to standout) that we could identify and move towards. Making our way through the mass of people in the station, and what seemed like all new smells, none of which we wanted to experience, we made it to the platform just in time to board our train. Our group was split up in three different cars on the train. Some sat with others in our group and enjoyed different experiences than others that were split up. It was the start of a sleepless night of travel for some. We were in for twelve hours on this train!

Sunday evening, May 6, 2012

Ilona Schilderink and David Waggoner

All of our time was spent traveling to the train station and boarding the Rajdhani train which took us to Vadodara. The “Rajdhani Express” is a passenger train service in India connecting New Delhi with other cities throughout India. Rajdhani means “The Capital” in Hindi and other Indian languages. This type of passenger train gets the highest priority on the Indian railway network. It was fully air-conditioned. However, it was very cramped within each seating area and the bathrooms were not very sanitary. Although complimentary meals were offered during the trip, very few of us were willing to risk eating the food and getting sick. As discussed below, we were all astonished by the massive crowds, trash, and filth contained in the train stations.

During our long train ride, we were able to reflect and compare notes on our experiences thus far. One of the most overwhelming facts we discovered during our travels is that traffic congestion is severe in India's cities and towns. Traffic congestion seemed to caused by several reasons: increase in number of vehicles per kilometer of available road, a lack of intra-city divided-lane highways and intra-city expressways networks, lack of inter-city expressways, traffic accidents and chaos from poor (or none!) enforcement of traffic laws.

Traffic congestion reduces average traffic speed. Traffic gridlock in Delhi and other India cities is extreme. The average trip speed on many Indian city roads is less than 20 kilometers per hour; a 10 kilometer trip can take 30 minutes, or more. At such speeds, vehicles in India probably emit air pollutants 4 to 8 times more than they would with less traffic congestion. Indian vehicles also probably consume a lot more carbon footprint fuel per trip, than they would if the traffic congestion was less.

Trash and garbage disposal services, responsibility of local government workers in India, are ineffective. Solid waste was routinely seen along India's streets and shopping plazas.

Trash and garbage was a common sight in urban and rural areas of India. It is a major source of pollution. We were informed that Indian cities alone generate more than 100 million tons of solid waste a year. Street corners were piled with trash. Public places and sidewalks were despoiled with filth (including the train stations!) and rivers and canals act as garbage dumps. In part, India's garbage crisis is from rising consumption. India's waste problem also points to a stunning failure of governance.

Monday morning, May 7, 2012

Dave Lilley and Mark Kubecka

The Class opened the morning (following the long and interesting train ride from the night before) with breakfast and access to Wi-Fi for the first time in several days. This was a very nice change for the group and a chance for many to catch up with loved ones back home. After the meal and modern technology time the morning continued with an Interactive Session on Dairy and Cotton sectors. There were presentation by Indian representative and also two member of the TALL XII class.

The program began with Indian music and song, followed by “Lighting of the Lamp” by the speakers, and finally presentation of flowers amongst speakers. From there the attendees were welcomed by Dr. Ashwin Thaker of the Anand Agricultural University (AAU), and then introductions of involved parties by Dr. K.B. Kathiriya (AAU). Dr. Jim follwed with a prestation about the TALL program and then information about the Texas AgriLife Extention and how it operates and serves the agricultural interest of the state.
The Inaguraion and Address by Chief Guest, Dr. A.M. Shekh, the vice chancellor of AAU followed by the vote of thanks given by Dr. .N. Wadhwani of AAU. After these opening activities the session broke for tea time.

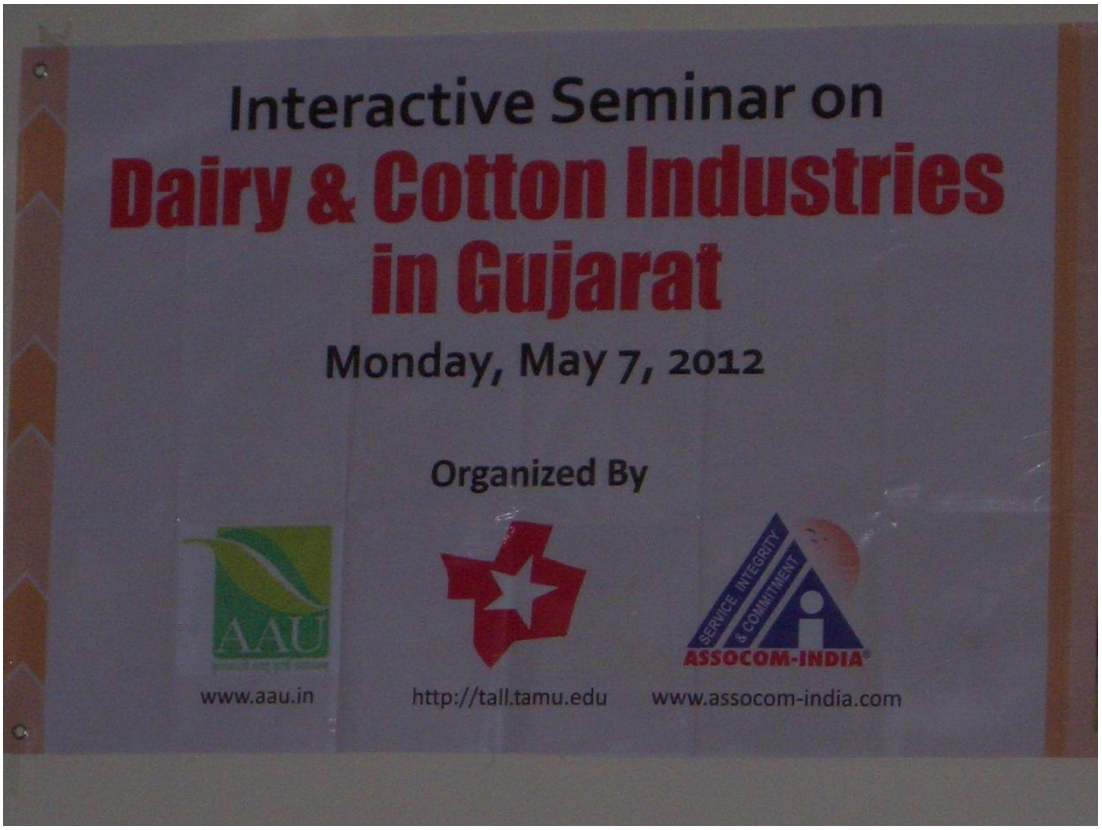
The first presentation of the session was about Bt Cotton in India and was given by Dr. J.A. Patel. Cotton has been grown in India for over 3,000 year and has been called the white gold of India. India is the #2 producer and exporter of cotton, and accounts for 25-30% of the world production. This past year India averaged 517 kg/ha on 111 lakh.

The major inhibitor to cotton production in India is pests. The pest complex is headed by the bollworm, followed by sucking pest, and finally chewing pests. Bollworms can account for 25-30% reduction in yields while sucking pest account for 5-10%.

The introduction of Bt cotton in India began in 1944 with permit request by Monsanto. The permit was received in 1995, and small scale field trials began in 1998 & 1999.

Large scale field trial began in 2000, and large scale production in 2001. In 2002 3 Bt cotton varieties were approved for farmer production. In the time since the approval of Bt cotton yields have increased from just over 300 kg/ha to now over 650kg/ha in Gujarat. An additional advantage to Bt cotton is the shortening of the growing season that allows more time for a second production crop each year.

The next wave of Bt cotton, Bollguard III is expected to used in India by 2020, and will provide insect protection against bollworm, army worm, and pink bollworm and will also included herbicide resistance.



Monday afternoon, May 7, 2012

Mike Metzig and Garry Merritt

The afternoon session on dairy and cotton industries in Gujarat started of like the morning session, out of order and unorganized! Dr. D.B. Patel, research scientist with Anand Agricultural University gave a presentation about maize varieties, production, insect and diseases, and challenges the industry faces.

Dr. Patel stated that maize is the 3rd most important crop in India, behind wheat and rice and typically grown by socio-economically poor farmers. Just as we have in America, they too have hybrid varieties and are always looking at new varieties to improve production. Their maize is grown mainly in Northern Gujarat and in soil types from sandy to clay. They only use certified seeds and typically plant the 2nd week of June. Their crops are weeded two to three times per growing season by labor but will also use some atrazine chemical. Both manure and man-made fertilizers are used and if they do have water, they will irrigate their crop.

Challenges they face are lack of adoption of new technology by the farmers, poor distribution of quality seeds for the farmers to plant and overall lack of infrastructure for the farmers to get their crops to market. Dr. Patel wants increased research on maize, more education of the producers on new techniques and methods, and a better distribution system of quality seeds along with a crop insurance program.

It seems to us as outsiders though, that even if they increased production, their harvest methods, which are mainly manual, and lack of a good infrastructure to move their crop from field to market, that they will be just spinning their wheels.

Dr. A.K. Makawana gave a presentation of the dairy industry in India. India the largest dairy producer in the world and they are very proud of it. They produced 121.8 million tonnes in 2010-11. In 1886 Military Dairy Farms began to provide milk for their own people and after the British left in the mid 1940's, the villages began providing more of the dairy cattle. Then in early 1970's, Operation Flood Program was implemented to increase milk production and was done in three phases from 1970 to1996.

India may be number one in milk production, but definitely not due to more efficient cows as most of the farmers have 1 to 2 dairy cows per household. Another big difference is that the women are the driving force of their dairy industry. They milk the cows and deliver it to market. Much of their milk comes from water buffalo which have more fat content than their cattle.

TALL XII class member Darren Turley, Executive Director of Texas Association of Dairymen provided our hosts with information about the U.S. Dairy Industry. Darren discussed how we concentrate on making the cows comfortable and clean from birth on so as to increase the amount of milk they produce. Our dairy herds can be in the thousands and typically produce 2 to 3 times more milk per cow than those in India. Unlike India, the milk is constantly checked for cleanliness and safety and the cows are feed diets that help them produce the most milk. Dairy in the U.S. is one of the most regulated ag industries in the US.

Mike Metzig, TALL XII class member and Vice President of Lending with AgTexas Farm Credit in Lubbock gave a presentation on the U.S. and Texas cotton industry. India is currently second in world cotton production and the U.S. is third. India has over 5 million cotton farms that are generally 1 to 5 acres, whereas the U.S. has only 18,000 cotton farms. India will make about 23 to 25 million bales per year and the U.S. 18 million bales or so. Texas is the largest producer of cotton in the U.S. and produces about 6 million plus bales per year. The South Plains of Texas, which includes the

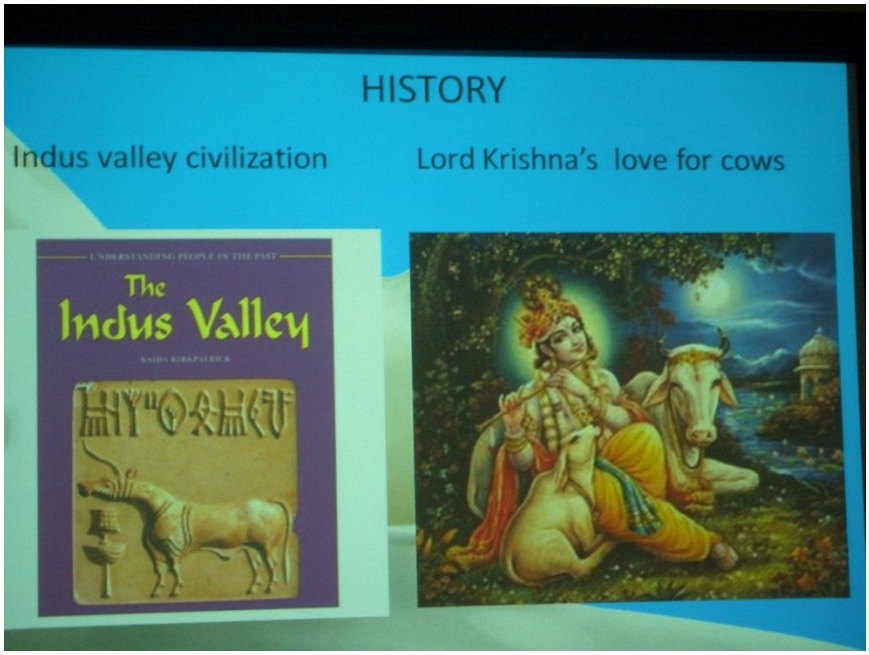
Lubbock area, typically produces 66 percent or more of Texas cotton crop, 30 percent of U.S. and 5 percent of world's cotton.

We then proceeded to AAU to visit their research facilities on animal biotechnology, animal genetics. I will admit upfront that due to how quietly are hosts spoke and lack of being able to understand what they say due to their English language not being up to par, I missed much of what they said. Dr. Chaitanya G. Joshi showed us the facilities and studies they are doing at the University on DNA and RNA extraction as well as genome sequencing. He mentioned some universities in the U.S. that are all working together and sharing what they learn with each other. They do a lot of study on the muscle cells of cattle, buffalo and goats.

Dr. Wadhwani visited with us about lucern, a crop used for feed in India. They are growing test plots and looking at ways to make it produce more and provide more nutrition to their livestock. He said the livestock really like it and is a crop that is planted each year.

Dr. P.G. Shah with the Department of Food Technology discussed how they test for chemical residues on fruits and vegetables. With millions of people selling produce on the side of the road, he said they will send staff out to collect and bring the produce back to the lab to test for pesticide residual. About 2-5% of the vegetables have too much pesticide. There are 24 of these labs across India and they are required to provide their findings to the Government of India. These labs test for chemicals that were used as far as 50 years back. They do not have traceability like we do in the U.S.

but are using a barcode on mangos and grapes. Dr. Shah said that they are still testing for toxic gases from the 1984 Union Carbide Corporation explosion in which pesticide, 32 tons of it, killed 18,000 people in 2 weeks in Bhopal.



Monday evening, May 7, 2012

Scott Piercy and Jason Pooley

The evening of May 7th, The TALL class was treated to an evening of music and relaxation. We all gathered poolside at the Hotel Neejanand to enjoy some appetizers and drinks. We were also treated to some local music by a DJ who was very accommodating to allow us to mix in some of our music as well. Later, we were joined by the Anand Agricultural University (AAU) Faculty and industry representatives and a good time was had by all. They AAU Faculty presented each of the TALL members with an award designating the beneficial and engaging interaction between TALL and the university.

Tuesday afternoon, May 8, 2012

Tanya Foerster and Ernest Bailes

By this point in our trip, we had ridden thousands of miles and were fortunate enough to get a free day. Most of our classmates took advantage of sleeping in, taking in some local sights and hanging out at the pool. We enjoyed some much-needed social time and were ever grateful to Dr. Jim for making that happen.

The scene at the beach

A few classmates took a road trip to the beach. Their photos revealed the water resembling chocolate milk as numerous cows, goats and people relaxed on the littered sand. The neatest site for them was seeing a huge elephant transporting branches down the highway. The rest of us were bummed we missed that! The elephant was enormous and his head was even decoratively painted.

The working elephant

A second group of class members went to a local shopping mall and thought we found heaven when a Papa John's Pizza restaurant served real pork pepperoni! We filled our bellies with non-curry infused, cheesy, pepperoni pizza and savored every bite.

Tuesday evening, May 8, 2012

Amber Miller and Bruce Fleming

Pool Party

Finally, this evening, we were given time to relax. Despite the fact that Gujarat State does not sell Polish soda water to the general public, our tour guides were able to access the black market and round up some adult beverages for the class. And, we were offered a buffet of appetizers – none of which included curry. We felt like royalty! Or, perhaps pop-music stars, as the "resort" had moved in a large speaker system, and as the music blared, our class obliged the gawking locals and university officials with some stellar dance moves from the 1980s and 1990s. Bollywood, watch out! We were even treated to a mini-WWF episode as Monsieurs Turley and Pooley battled it out, to obtain the favor of some lovely Indian lass whose dowry was likely quite high. As all good things must come to an end, the music finally faded, the cheap spirits and non-curry cuisine ran out, and half of the class ended up taking a nice little swim in the only body of water in India that might have been treated with some sort of chlorine. A lovely little evening.

Wednesday morning, May 9, 2012
Amanda Dyer and Michael Goudeau

Wednesday morning we checked out of Neejanand Resort, tore ourselves away from the hotel restaurant's free wireless Internet we had become so accustomed to the past 3 days, and boarded the bus for AMUL Dairy. We were a little out of sorts when we boarded the bus 2 nights ago after our train ride, so I don't think we fully appreciated just how poorly the bus maneuvered. We were all quite alert after a restful couple of days and the normal chatter and dozing was replaced by gasps of fear and grabbing for the seat in front of us. This bus was more top heavy than a fat woman on a double diamond ski slope! Even small turns left us swaying back and forth like a bobblehead; people were yelling for others to switch sides on the bus to even out the weight and making wagers on how many bags were going to come falling out of the luggage racks above the seat. Lucky for us the dairy was only about five miles away so we didn't have to wait long to scramble onto solid ground.

We were ushered into AMUL dairy's impressive facility. We started out in the boardroom with Mr. Sunda, head of public relations, where he gave us an in depth presentation over the operation. AMUL Dairy is India's primary milk supplier. The name AMUL stands for Anand Milk Union Ltd. The dairy is a farmer owned cooperative that was started in 1947. They are the largest dairy plant in Asia, producing 120 million metric tons of milk per year. The co-op provides millions of farmers with the opportunity to sell their production. AMUL is a $3 billion brand. They plan to double their production in the next 10 years, partly from 2 plants in they are scheduled to build in the U.S.

They produce and sell 2 types of milk: buffalo milk and cow milk. AMUL improves its dairy cattle genetics through artificial insemination. Much of the semen is imported from the U.S. They have 1,028 trained A.I. staff and round the clock veterinarians. AMUL has 3,000 employees throughout its divisions, which include the dairies, chocolate plant, cheese plant, paneer plant, cheese whey drying plant and feed plant.

AMUL aims to provide returns to the farmers and also serve the interest of consumers by providing quality products at a good value. It is the exclusive marketing organization of Amul and Sagar branded products. It operates through 47 sales offices and has a dealer network of 5,000 dealers and 1,000,000 retailers, one of the largest such networks in India. Its product range comprises milk, milk powder, health beverages, ghee, butter, cheese, pizza cheese, ice cream, paneer, chocolates, and traditional Indian sweets. AMUL is India's largest exporter of Dairy Products. Many products are available in USA, Gulf Countries, Singapore, The Philippines, Japan, China and Australia.

After the presentation from Mr. Sunda, he gave us a tour of the immaculate facility, which housed some of the most advanced machinery we had seen thus far on our trip. After the tour, Mr. Rahul Kumar, Managing Director, talked to our group about the structure of the co-op and their expansion plans. Overall, this was one of our group's favorite visits.

Wednesday afternoon, May 9, 2012

Marsha Shoemaker, Kip Thompson, Darren Turley

AMUL – Chocolate Factory

The AMUL Chocolate Factory started in 1972. The AMUL personnel gave us a tour of the plant and explained the chocolate making process. Basically, the cocoa beans are roasted to make cocoa powder and butter which is the primary ingredient. Additional products such as milk powder and sugar are added to make the chocolate. While some beans are grown and obtained from Southern India, most are imported to meet the plant's needs.

At the end of the tour, the class got to sample the various products shown in the picture above.

AMUL - Feed Plant

Part of the farmer cooperative, is a feed mill operation that assists the farmers by supplying feed for their dairy operations. During another tour, it was estimated that 70% of the farmer's expenses were in feed/feedstuffs. The AMUL cattle feed plant produces compound cattle feed at 3,690 million tons of feed per day. The feed is made into a pellet that is approximately 20% crude protein.

Again the class was astounded by the number of employees at the plant and the lack of mechanization. A class member asked why and a very simple explanation was that in India, the labor force was available and was cheap. Should the various industries in India be modernized, then the unemployment rate in India would grow.

Travel

While the class had several other scheduled tours and meetings, the tour bus ran out of gas. The TALL guys flew in the lend advice in making a gas funnel and even getting us

back on the road by teaching the bus driver how to jump start the bus as the TALL guys pushed the bus.

Also during the stop in the residental area, several of our classmates made friends with local children. Our TALL guys were really missing their own kids and were drawn to the children in India. Kip even taught the children about Texas A&M and had them videoed saying “Texas Aggies”.

Wednesday evening, May 9, 2012

Kimberly Ratcliff and Jim Hunt

We arrived early to Vadodara Airport for our trip back to Delhi due to our bus troubles. During this layover the group had an opportunity to share photos from the previous stops and catch up on some needed sleep. We had a slight delay at the airport but arrived to Delhi where we took a three hour bus trip to Ultar Pardesh, India.

Thursday morning, May 10, 2012

Scott Taylor and Linda Ryan

FINALLY, we stayed in a modern hotel in Agra! By far and away the nicest place we stayed in the last two weeks. A 4:00am arrival at the hotel meant we had to sleep fast! There was some very good shopping there and many of us that had not done much shopping along the way caught up at The Gateway Hotel in Agra. Agra is home to the Taj Mahal! We left the hotel at mid-morning for our tour of the Taj Mahal. Fortunately, it did NOT disappoint.

The Taj Mahal is a spectacular site. Our tour guide gave us the history of the Taj before we made our way into the site. The Taj Mahal was built by the Mughal Emporer Shah Jahan in commemoration of his "favorite wife", Empress Mumtaz Mahal who died at the birth of her 14th child. The emperor made all efforts in building the tomb in her memory. It is acknowledged as one of the Seven Wonders of the World. After his death, Shah Jahan was also buried beside his beloved wife in the Taj Mahal. It took 20,000 workers 22 years to create this marble creation. Many semi-precious stones are inlaid in the marble.

We took many photos with the Taj Mahal as our backdrop. We spent a couple of hours there and even entered the Taj to see the tombs on display. Photos were not allowed inside the Taj. This was our last full day in India. We went out with a bang!!!

After visiting the Taj Mahal and doing some shopping in the area, we once again boarded the bus for a five hour journey back to Delhi to begin our travels back HOME!!!

Thursday afternoon, May 10, 2012

Ilona Schilderink and David Waggoner

The highlight of the trip was our visit to the Taj Mahal. What an amazing, man-made wonder of the world! We were all overwhelmed by the size, scope, and intricate detail of craftsmanship. Taj Mahal means “crown of palaces”, and it is white marble mausoleum located in Agra, India. It was built by the Mughal emperor, Shah Jahan, in memory of his third wife, Mumatz Mahal. The Taj Mahal is widely recognized as “the jewel of Muslim art” in India and one of the universally admired masterpieces in the world.

In 1631, Shah Jahan, was grief stricken over the death of his third wife who died while giving birth to their 14th child, Gauhara Begum. In honor of her death, he ordered the construction of the Taj Mahal. The construction began around 1632 and as completed around 1653, requiring over 20,000 artisans and craftsmen. The principal mausoleum was completed in 1648, and the surrounding buildings and gardens were finished approximately five years later. By the late 19th century, parts of the buildings were badly damaged and in disrepair. During the time of the Indian rebellion of 1857, the Taj Mahal was defaced by British soldiers and government officials, who chiseled out precious stones and artifacts from the walls. However, at the end of the 19th century, Lord Curzon ordered a major restoration project which was completed by 1908. During this time period, the large garden in front of the Taj Mahal was remodeled with British-style lawns which we were able to see during our tour.

TALL Class XII, Taj Mahal, Agra, India

Thursday evening, May 10, 2012

Dave Lilley and Mark Kubecka

Road weary and anxious to start the long journey home, 5:00 found the Group en route by Coach from Agra back to Delhi.

With another fine example of just how difficult it is to traverse the Indian landscape (6 hours to go 100 miles), the Group opted to press on without a formal dining experience in exchange for a quick stop at McDonalds.

This decision allowed us time to handle some administrative affairs such as collecting money for tipping our assistants from the previous 2/3 days, accounting for and squaring with one another for the variety of monetary inconsistencies that had certainly occurred over the previous 13 days and otherwise resting and relaxing as we mentally and emotionally prepared for the long and tedious trip home.

As we arrived in Delhi at approximately 10:00 pm the decision was made to hire 6/7 Hotel rooms for one last chance to shower and clean up for the trip. In retrospect, this was a very wise decision as it simply made the trip home that much more tolerable.

By Mid-night though it was off to the Airport and our voyage home had officially commenced.

Friday morning, May 11, 2012
Mike Metzig and Garry Merritt

Friday afternoon, May 11, 2012
Scott Piercy and Jason Pooley

The following are some of our classmates' descriptions of their India experiences versus their expectations and their paradigm shift from their trip:

I expected to see a country that was embracing capitalism, shedding decades of governmental protectionism, and working to become a first-world economy. What I experienced was a country that devotes most of its resources only to support its huge population – 4 times the number of people in the US with about 1/3 the land mass – and that is far, far behind first-world countries in developing fundamental infrastructure like roads, hospitals, and clean water supplies. I was surprised to see the massive numbers of people living in abject poverty and by the incredible amount of trash we saw almost everywhere we went. I most enjoyed meeting farmers, people in the markets, and people worshiping at temple and finding them to be warm, kind and generous with their time.

As for a paradigm shift, I have a stronger than ever appreciation for the laws and free-market economy of the US. What has made us great as a country over the last 240 years is that we have a system that allows anyone, with hard work, talent, and faith, to achieve more than they had. I question whether and to what extent people in India have the same opportunity.
Garry Merritt

I would say that my experience didn't vary too much from my expectation. However, I was blown away at the poverty level in the city but was pleasantly surprised by the farming operations and the level of pride and excitement the ag folks had during our tours of their farms and villages. I have a new found respect for America and our conveniences and luxuries!
Tanya Foerster

I saw more poverty than I was expecting. India has much more trash and filth than I what I thought I would see. I was amazed to see beautiful temples right next door to slums. I expected to see agriculture equivalent to the U.S. around 1970's, instead I think it compared to the U.S. 1930's.

India agriculture has the problem of lack of modernization and technology. Unfortunately it's a catch 22, because with 70% of the population engaged in agriculture if you modernize, you drive down the amount of population involved in ag and thus have a population shift to the cities. Without adequate jobs, this results in more poverty.

India was definitely an experience. I'm glad we have the individuals we have in TALL XII because it made the whole adventure much more bearable. My kudos to the Ladies of TALL XII because I know the experience, the lack of bathroom facilities, and the lack of modern conveniences, had to have a harder toll on them.
Bruce Fleming

Hot, damn hot. The conditions were worse than expected while the people were better than expected, with strong character and beliefs even in their dismal surroundings. I was very surprised on the state of one of the largest populated countries in the world.
Darren Turley

It was an experience, both good and bad. I am not sure what I fully expected but I do know it was not met. I expected an up and comer like India to be happening and in a stride of vitalization. I did not expect the level of poverty and strife that I saw. It frustrated me to not see the level of innovation and improvements necessary to be a world player yet I understand (I think) that they need to provide jobs, no matter how meaningless or repetitive for a huge workforce. The temples and monuments were amazing but the existing current infrastructure seemed lacking and insufficient.

I am grateful for the experience and it has provided me with some insight and appreciation into my own life and world that did not previously exist.
Jason Pooley

I'm not sure that I had clear expectations before travelling to India. However, I was shocked to see the level of filth and poverty in "the world's largest democracy"! Once we got out into the country and on the farm, my opinion quickly changed. Except for the lack of mechanization, the farmers are truly not that much different than our own in the US. They are truly (maybe even better) stewards of the land that has been provided for them. I just can't get over the complete lack of infrastructure that currently exists. The children were truly a blessing to have encountered. I realize they just don't know any better life exists for them, but they sure seemed happy and smiled from ear to ear. I was a great ONCE IN A LIFETIME EXPERIENCE that I have no plans of repeating in my lifetime! It does make me thankful to have what I have in the US where we do take things for granted.

Scott Taylor

I expected India to be less civilized than the U.S. and I expected to see some poverty, key word is some. I experienced poverty and lack of modernization in every town or city we went to beyond my expectations. BUT, the India people were fine with all of it as they did not know any different way of life. I was impressed though how the farmers we visited out in the village were much like our farmers, all very proud people and proud of what they do!

Mike Metzig

The levels and scope of poverty were on a much larger scale than I had expected. I think one lesson learned is: people are people. And, deep down, the majority of the people that we encountered were just as curious about our lives and experiences as we were about theirs. The warm hospitality of the family in Punjab state who invited us in – after less than ½ day's notice, I'm sure – to see their home and have tea, was one of the highlights of the trip for me. They took time for us, and at a time in our trip when we all needed it.

Amber Brady Miller

The trip was truly a once in a lifetime experience. I learned more than I ever dreamed and wouldn't trade the experience for anything. Having said all that, I certainly have no burning desire to return to India. I don't think there is any way to adequately describe the extremes we experienced. Whether you are talking about the mass of people, the poverty, the filth or the scale of the agriculture - it all defies description. It is amazing to watch so many small farming units produce such massive quantities of agricultural products and still not have enough to feed all of the population.
Scott Piercy

I went into the trip with an open mind and left with a new-found respect for being an American in agriculture, especially with being a woman.
Kim Ratcliff

India has more diversity than I expected, talking about both agriculture and people.
Ilona van Vliet

TALL XII

2010-2012