

PolicyPennings by Dr. Daryll E. Ray

Brazil's climate results in different cropping patterns and equipment use

On Sunday afternoon, February 12, 2006, we visited with a foundation in Prima Verde do Leste, Mato Grosso (MT) that works with the Brazilian national crop research agency, EMBRAPA. Together with EMBRAPA, the foundation in Prima Verde do Leste works with 19 seed companies and 43 farmers in developing new disease tolerance varieties. Because Brazil has eliminated their GMO prohibitions for soybean seeds, the research includes the incorporation of Round-Up™ technology into locally developed varieties. The foundation pays a royalty to the patent holder for the use of the patented genetics.

One of the areas of intense research is Asian Soybean Rust (ASR), which if it strikes early can require as many as seven sprayings and destroy the profitability of the crop. The foundation reported that it was testing some promising varieties with regard to ASR tolerance if not outright resistance. We then visited a farm that commercializes the production of soybean seed obtained from the foundation's research and got our first hand look at soybean rust.

The soybean seeds were near maturity when the rust struck the field so the number of required sprays needed to manage the disease until harvest will be closer to three than seven. For a novice, the rust pustules were easy to see on the underside of the leaf, especially with a small magnifying glass. As each of these pustules matures it releases a large number of rust spores back into the environment increasing the level of infection and the potential for significant yield loss if the fields are not sprayed. The plants that we looked at did not appear to be badly damaged by the appearance of ASR.

The center pivot irrigation system was larger than those we are used to seeing. It was a familiar Valley system but instead of the usual 7 towers it had 15 stretching out for 900 meters or a little over a half a mile. This center pivot system is used during the dry season to enable the producer

to harvest three crops a year from the same piece of land. During the rainy season, that area of Mato Grosso gets as much as 2.3 meters (90") of rain a year so no irrigation is required for half the year.

In areas that were not irrigated, it is customary to double crop the land. At least for the farmer we talked to, double cropping involved one crop of soybeans and one crop of dried beans for food use. On irrigated ground he produced one crop of seed soybeans and two crops of dried beans. He showed us a map showing both the current center pivot systems and at least a dozen new ones that are in the planning stages. For water they draw from nearby streams instead of underground aquifers.

As we watched the harvesting and planting around us we were struck by the size of the machinery. Given the size of the fields, we expected to see equipment as large or larger than that used in the US. Much to our surprise it was smaller. The planter box for the dried beans was being drawn behind a not too new two wheel drive tractor – no four-wheel-drive articulated monster here. Steiger made bigger tractors than this in the mid-1980s. There were no hydraulic swing down arms on the planter box, just a single width. No electronic monitors either. Two farm hands rode on the planter box to make sure there was adequate fertilizer and seed and that nothing plugged up.

With a fairly stable weather pattern, low labor costs, and no frost or soil temperature issues to deal with, Brazilian farmers do not need to get everything done in a week or two. As a result they do not need the latest, largest high powered equipment to get their field work done. They have what is for US farmers a luxury during planting and harvest: time.

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