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2007 SOLUTION DAYS NOTES

There are some exciting times ahead in agriculture. There is high expectations that amylase corn will change the ethanol industry process. Syngenta is currently seeking full food and feed approval. The alpha amylase enzyme is currently an added ingredient to convert starch to sugars at ethanol plants. There is optimism or potential to significantly improve the ethanol process and thus the overall efficiency of ethanol plants, including yield increases, process improvements and possibly reduced ethanol production costs. Syngenta feels they are the VIP gene and amylase corn leader.

Aphid resistant soybeans are two years away. This change is coming from non-GMO native traits. Aphids have not been a big problem here, but this will help Northeast Nebraska. The market is expecting a 50% increase in seed treatment purchases over the next 4 years in soybeans. Everything is pointing towards earlier planted soybeans with seed treatments. Fungicides are being encouraged to protect from seedling diseases. An example is Cruiser for early insect protection from bean leaf beetles. A glyphosate replacement/improvement, GAS, is expected in 2009.

There is continued soybean cyst nematode work on enhancing existing varieties with Peking and a Missouri line of resistance that has additional race traits beyond current Peking. Soybean cyst nematode transgenic lines are expected about 2016.

Drought tolerance was discussed alot, but is a very complex issue and gains are likely to come slowly. The target is the western corn belt region, they want long-term genetic gains for the outcome of drought tolerant corn that still yields well in outstanding years. The best gains will be in no-till, rotations, and water conservation efforts in farm fields in the near future.

We never gain back the loss of yield when going corn-corn-corn-corn versus the corn-soybean rotation. Land Grant University research shows an average of 9% yield loss with a range of 2% to 23%. Your biggest reduction in yield is that first year of corn-corn then yield tends to stabilize.

You never can recoup the losses that average 7% yield reduction on field corn when you have populations of 2" tall weeds. Add up the number of weeds and total biomass of 2" weeds on a per acre basis will really surprise you. Studies have shown 6% to 10% yield loss. Kill weeds with pre-emergent or when they are very small. Early season weed management is critical.

Suat Irmak, UNL Irrigation Specialist, is measuring on and off season evaporation and transpiration (ET). No one has really ever documented off-season losses in ET in Nebraska. Also he is interested in documenting evaporation losses from various tillage systems. ET gauges and watermark soil sensors have shown significant savings in water usage and energy costs.

Concerning the fuel market, in 2006 the U.S. produced 5 billion gallons of ethanol. In 2007, expect 5.5 to 7 billion, future development could easily triple and quadruple these numbers. Needless to say we are going to see lots of development of market traits for ethanol and in



soybeans for biodiesel. Producers are going to have to factor yields, price incentive, and market options of these offerings in the future.

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