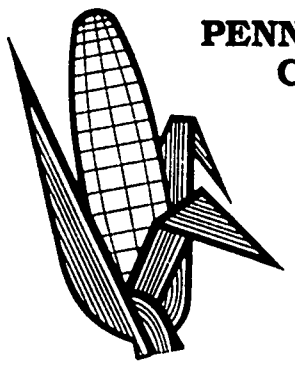

PENNSYLVANIA MASTER CORN GROWERS ASSOCIATION

Between The Rows

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LESSONS LEARNED FROM LAST SEASON

One of the most interesting aspects of crop production is that each year provides us with some experiences that can help us improve production in the years to come.

Corn production in 1993 was no exception. In this column, I'd like to review some of my observations from 1993 and the implications for the future.

The stage was set for the 1993 season with heavy snowfall in March followed by a very wet April. Wet soils resulted in planting delays and some growers switched to no-till to try to catch up once planting started.

There were plenty of opportunities for tillage or planting on wet ground. No-till fields that had combinations of low overwinter levels of residue and were planted early had poor early season vigor. I am convinced that poor soil structure, due to a combination of planting a little too wet and the heavy spring rains on exposed soils over winter, had an effect on crop growth and yields in 1993. These observations reinforce the concept that no-till planting needs to be delayed until soils are dry enough and that one of the roles of crop residue is to protect it from the effects of excessive rainfall.

Later in May, conditions following planting became quite dry for many. This resulted in poor or uneven emergence of shallow planted corn. Shallow (one inch deep) seeding depths are probably only justified early in the season, where no Prowl applications are planned, where equipment is in good condition, and planting speed is not too fast. Under most conditions, 1½ - to 2-inch planting depths will perform well.

Several veteran no-tillers I visited with this year, however, claimed they have good success in no-till with deeper planting depths, in the 2- to 2½ -inch range. They claim more consistent emergence under variable soil moisture and residue conditions and higher planting speeds.

Large field to field variations in yields were common this year, due not only to soil structure problems, but also to soil depth, stoniness, and whether that extra summer shower passed by. Many of these things affect the water supply to the crop, which for many was the most limiting factor in 1993.

I found variations of up to 50 bushels per acre with the same hybrid planted on the same day in fields that were less than a mile apart. One implication of this kind of variation is that the field-to-field comparisons of hybrid performance that we all like to make are not that valuable this year.

Many growers were frustrated with the level of weed control obtained with the preemergence weed control programs, due mostly to a lack of rainfall following application. Most of those who opted to follow up with a post-emergence program made a good decision. Without it, some fields were inundated with grassy weeds because of the short corn and open canopy. In these situations, the effects of drought stress were increased and corn yields were really depressed.

One aspect of early season weed control is timely detection of the problem. Too often, we wait to take action when the weeds become visible from the roadside. By that time, some of the damage is done and the weeds are often harder to control. This experience should confirm to us that early season weed scouting and control is important and timely action can reduce potential yield losses.

Several of us have been working with various cover crops, including rye, for use in corn silage production. Often we have seen a yield reduction associated with planting into tall rye that has either been killed or plowed under. These yield reductions have often been attributed to poor stands, insect damage, or toxic effects from the decaying rye. Research results have generally indicated that these effects can be avoided by killing or plowing under the rye before it is more that 12 inches tall.

I visited several corn silage producers using an early-kill rye system and saw some of the best corn of the year. This confirmed to me that rye can be used effectively to control erosion, take up excess nutrients, and protect the soil with no impact on yields, provided it is managed properly.

I've also been watching several local fields that have been seeded down with a spring oats cover crop. These fields have stayed green up at least until Christmas. Oats are probably an underutilized cover crop that would be good for early harvested corn silage fields. The low cost of establishment, the lack of spring growth, and no need for a burndown herbicide in the spring are all advantages of an oat cover crop system.

The seed industry has started talking more about the benefits of biotechnology, particularly in the areas of corn borer control, improved grain quality, and herbicide resistance.

I had an opportunity to visit a test field where some of the European corn borer-resistant materials were being grown. The normal hybrids had about 50-75 percent broken stalks, but the resistant materials very virtually undamaged.

Questions still remain about the yield competitiveness, potential for insect resistance, and public acceptance of these hybrids. If these can be overcome, this will definitely result in increased yields for those areas where corn borers are a common problem.

On another trip, I viewed some soybeans resistant to Roundup and the seed company claimed Roundup-resistant corn may be here by the year 2000. Imagine the impact this could have on weed control programs. It appears the tremendous investment in biotechnology by the seed industry may starting to bear some fruit that could have some large effects on yields and how we grow corn.

Last but not least, I had the opportunity to visit a grower in western New York who has gone to 15-inch rows with a 42,000-plant population on 400 acres of silage corn. He's been seeing a 3 ton/acre advantage — more than enough to cover extra seed and machinery costs.

Is there potential for this approach in Pennsylvania? More formal research is under way at Cornell and Penn State to confirm this, since narrower rows would have other benefits as well — better weed control, less soil erosion, and more nutrient uptake.

There were a lot of other things in 1993 to talk about: new herbicides, trashwheels, $3-plus corn, and many more experiences I 'm sure each of you could share.

These are exciting times in corn production, and there continues to be many new products and ideas out there to challenge us in the years ahead. The key to success for all of us will be to carefully evaluate this new technology here in our unique corn production systems.