stored on farm. A sizeable amount of this year's production went into temporary storage using plastic bags. If grain is stored this way it is important to monitor it daily for tears and leaks. Metal bins will need to be thoroughly cleaned before storing next year's crop.

Corn Hybrid Development, Testing And Selection For The South – A Pioneer® Perspective

Presented by Randy Hegwer
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Corn hybrid customer needs vary greatly from one region to another, from one grower to anotherand one field to the next. However, the one constant around the world is the expectation that corn hybrids yield in the customers environments. The south is different from the Corn Belt in regards to acreage density, rotation options, soil types, abiotic and biotic pressures, weather patterns, anda host of other conditions. In order to minimize production risk for the southern corn grower Pioneer® continues to breed unique genetics, evaluate inbred and hybrid performance across many locations and years, as well as understand response to environmental variability throughout the south.

Since corn is a cross-pollinated plant it is important to first develop adequate female and male parents (inbreds). It is also important to offer diverse genetic backgrounds. Pioneer has the unique ability to explore its entire corn inbred library to look for genetic diversity. Today's southern inbreds are compared to their ancestral founders tracing back over 70 years of breeding to see phenotype to gene association. Diversity gaps are shored up utilizing genetic segments from other inbreds, such as from internal Corn Belt and international breeding programs.The southern breeding teams also utilize enabling technologies, such as molecular breeding and doubled haploids, to improve breeding efficiency and effectiveness.

Once genetically diverse inbreds are developed and identified as potential southern utility then the second major challenge begins with identification of the best-inbred combinations for south hybrid development. The south hybrid testing process typically takes seven years of evaluation from the first year it is tested in hybrid combination until recommended for commercialization. Thousands of new potential hybrids are screened, but only 1/3 of 1 percent will ever make it commercial status. The first couple of years involve "topcross" testing to determine the value and utility of inbreds as they are created via the inbred discovery process. Once south inbreds are created, they are validated over the next couple of years in small plot research in the R1 and R2 testing stages. At R1 and R2 these inbreds, and respective hybrids, are subjected to targeted non-yield trait screening observation sites. The southern sites include the following targeted traits: Southern leaf blight, Northern leaf blight, Southern rust, Gray leaf spot, Fusarium ear rot, Diplodia ear rot, Anthracnose stalk rot, plant population, ear flex, artificialinduced stalk and root strength,drought stress and hybrid by herbicide class sensitivity response. Other agronomic traits such asstay green, brittle snap, test weight, plant stature, husk cover, etc.are measured within the yield tests beginning at R1 stage. Additional targeted traits are measured in sites outside the south. From these southern sites the trait characteristic chart scores are assigned for positioningpurposes. The R3 testing stage (year 5) samples additional environments within the south geography and also extends outside the areato determine adaptation. The R4 stage (year 6) continues to expand the testing area with continued small plot research plus the addition of large plot side-by-side strip testing by the sales and agronomy teams. Hybrids that advance from R4 stage are commercialized to R5 for limited sales introduction. A typical experimental hybrid would get yield tested in approximately 350 unique locations during R1 through R4 stage. R5 stage testing (year 7) repeats the R4 stage level with both research small plot and sales strips.

Improved understanding of hybrid performance by environment (hybrid x environment interaction) is helping Pioneer develop and advance, as well as position hybrids where they have the best likelihood for future success. Even though southern adapted hybrids are identified they need to be positioned locally for best success. Pioneer has developed an enabling technology to better understand the way hybrids differ in their response to environmental variability. The EnClass®(Environmental Classification) system uses several key environmental factors (rainfall, temperature, solar radiation, soil class, etc.) and combines them with a fundamental knowledge of plant growth to better define and understand the influence of environment on differential responses between hybrids. It categorizes conditions proven to impact variations in relative hybrid performance that one experiences locally from year to year or across wide geographies in the same year.All research and side-by-side strip plot locations have been assigned an environmental class, providing a database that contains hundreds of thousands of individual locations, which are grouped by the environment they experienced. Product comparisons are generated from similar and contrasting environments. This unique system has proven particularly valuable in looking at the impact on hybrid performance changes due to weather differences between years, and against the probability of those environmental conditions occurring over time. South sales dealers and growers know different hybrids perform differently each year, depending on environmental factors. Hybrid A may perform better than Hybrid B one year; Hybrid B may outperform Hybrid A the next, even in the same field. Using the EnClass system can help one understand what happened environmentally to cause those differences, and may give a glimpse of what the long-term performance might be.Pioneer has collected a robust weather and land attribute database down to the township level, with some information at the field level.Environment class frequencies have been calculated using more than 50 years of historical weather and yield records for all major corn-growing areas in the U.S. and validated with our vast product performance database.Currently there are five environmental classes in North America as follows:

- Temperate-Frequent in Iowa and Illinois
- Temperate Dry -Frequent in Nebraska, Kansas and South Da
- Temperate Humid -Frequent in Indiana, Ohio and Pennsylvania
- High Latitude -Frequent in North Dakota, Minnesota, Michigan and Wisconsin
- Subtropical-Frequent in Deep South of U.S.

In short, the EnClass system is about managing probabilities, to more reliably match the right hybrids to the right southern acres for maximum productivity and resulting in fewer performance disappointments.

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What Will Increasing Corn Acreage Do To Nematode Populations In The Mid-South: Implications For Future Nematode Management Strategies

Presented by Dr. Terry Kirkpatrick
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Presented by Wes Kirkpatrick
Arkansas Cooperative Extension Service

Historically, mid-South cropping systems generally fell into one of three broad categories: monoculture of cotton, rice, or soybean, a soybean-rice rotational system, or a soybean-wheat double-cropping system. In the last few years, however, the economic outlook for corn as a viable crop in the region has changedthe cropping patterns for many growers. As a "new" crop is added to our system, crop pest dynamics may be altered and pest management strategies may need to be adjusted. Plant-parasitic nematodes are resident in the soil in essentially every field. Although some nematode species have not been considered to be of