

Fall Harvest: Where Did the BIG Yields Come From

By Vance Johnson

As the combines began to roll this fall, I think it is safe to say that everyone was pleasantly surprised with yields. Everything—corn, sunflowers, and soybeans—all seemed to defy the odds and produce some pretty impressive yields. The most common question being asked this fall is “Where did these big yields come from after all the water we received last spring?” All the spring rains in May through July certainly had to have taken their toll and added undue stress to the crop? Surprisingly, that is less true than one thinks (except where the crop drown out and died). Let’s examine why.

The corn plant stops vegetative growth at the V-5 (5th leaf) stage, and begins its reproductive (yield deter-

mining) stage of growth. During this stage the tassel is initiated, and from this point on ear shoots are formed, the number of kernel rows are determined, and the length of kernel rows is set. As far as yield is concerned, the number of kernel rows is determined primarily by genetics and less by environment, where as, kernel length is influenced by the environment. The length of time used in determining row length is about a month, more specifically, from the 6-leaf stage to about a week prior to tasseling. Because of this, stress (drought/water) induced during ear development has less effect on yield than stress incurred during pollination.

As we look back at this spring/summer we see that there was no drought,



water, or heat stress during pollination. During the ear development stages we had plenty of moisture (excessive in some areas), and no excessive heat to complicate our water issues. Warm weather (80+ °F) complicates things for crops in standing water. The cooler

(Continued on pg. 6)



CLEARFIELD*
production system | sunflowers

CLEARFIELD* Confection Sunflower Approved

The Canadian Regulatory Agencies granted approval for food, feed and environmental release of CLEARFIELD sunflower seed on August 12, 2005. The regulatory approvals are in accordance with Canadian regulations for plants with novel traits (PNT). This regulatory approval of CLEARFIELD sunflower seed will allow commercial production of CLEARFIELD sunflower in Canada for food and feed use. Approval provides a key opportunity for growth of the CLEARFIELD sunflower business in both the U.S. and Canada. It is the final step in the Canadian regulatory process allowing for the production and use of

CLEARFIELD sunflower seed, oil, and meal. CLEARFIELD sunflower oil was approved for food use in April 2003, and feed use of CLEARFIELD sunflower meal was approved in April 2005. Outside of Canada, CLEARFIELD sunflowers are not regulated because they are not GMO.

The final approval of CLEARFIELD sunflower seed was the result of a strong collaborative effort between BASF, the National Sunflower Association, and our industry. This approval cleared the path for SEEDS 2000 to introduce the CLEARFIELD confection sunflower hybrid, *Jaguar*, for 2006

planting in the U.S. *Jaguar* is an early maturing, uniform, single cross hybrid tolerant to Beyond™ herbicide. This hybrid produces the large, long, dark seed preferred by processors for in-shell markets. *Jaguar* combines very good stalk and root strength resulting making it an excellent choice for northern sunflower growing regions and for late planting.

Jaguar is being produced this winter in Chile and will be available for 2006 planting. Contact a SEEDS 2000 Sales Associate for more information about *Jaguar*.

*(CLEARFIELD is a registered trademark of BASF. Beyond™ is a trademark of BASF).

Behind the SEEDS



Steve Kent
President

Farm Scene

SEEDS 2000 Flowers Perform

Lloyd Raile—Wishek, North Dakota

Lloyd Raile of Wishek, ND knows how to make his SEEDS 2000 sunflowers perform, from proven practices over 30 years of farming. Lloyd started farming while still in high school. His management practices include: a lot of no-till with planter and John Deere air drill; consistently using adequate chemical and fertilizer schedule; and automatically “spraying every acre for seed weevils yearly.” Experience has shown him the yield possibilities and how to achieve them. Lloyd is happy with SEEDS 2000 sunflowers in part because “they dry down faster, making for earlier and easier combining. No one likes pulling a crop off in the snow.” He farms wheat and sunflowers, rotating sunflowers every third year.

Lloyd seeded 1350 acres of sunflowers this year. He grew Defender and Defender Plus NuSun™ hybrids, and, Defender HO and X4706 high oleic hybrids. This is the

first year in three that Lloyd was able to harvest a complete crop. Wind and hail hurt him the two previous years. Rain in his area was adequate, and timely, too, this year. Lloyd has planted SEEDS 2000 products for four years now, increasing acreage percentage each year. He started with two quarters of SEEDS 2000 the first year. This year he planted all but two quarters to SEEDS 2000 sunflowers.

Lloyd is very pleased with his results this year. Defender yields averaged 2400–2500 lbs/acre, 44–45% oil; the Defender Plus yields averaged 2750 lbs/acre, with 42% oil. Though some HO seeds fell out during a high wind storm, they still yielded 2400 lbs/acre. There wasn’t a killing frost this year, so the seeds dried but the plant didn’t. The X4706 was a much later crop, and stood up better. They yielded 2500 lbs/acre. All products averaged 32 test weight. Lloyd’s dad farms approximately



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Kevin Wall

Sales Manager



Pat Duhigg

Sunflower Breeder

amount of acres as he does. Lloyd's wife, Lila, is the president of their insurance business in Wishek. "She's the boss," says Lloyd, adding that they're both licensed insurance agents—he keeps his licensure current. They bought Raile Insurance from Lloyd's grandpa, JL Raile, in 1982. Their oldest son Eric and wife Amber live in Lansing, MI. They're both finishing doctorate degrees from Michigan State and are expecting a baby boy the end of January! Congrats and well wishes to the Raile's from SEEDS 2000!

Lloyd's daughter, Chaitra, is employed at Sayler Implement (John Deere) as the accountant, for Linton and Wishek. She also farms with Lloyd, raising SEEDS 2000 sunflowers every year. Her Defenders averaged over 2,500lbs/acre, 45 oil and 32 test weight. Lloyd states, "She is well pleased with SEEDS 2000 over Pioneer." Lila and Lloyd's twins, Jared and Stephanie, are sophomores at Wishek High. Jared enjoys hunting and customizing vehicles, while Stephanie enjoys playing for the Badger Volleyball team and playing piano.

The message Lloyd passes on to other farmers about SEEDS 2000 product includes: "SEEDS 2000 has com-

petitive prices, good availability, great service—Travis Meyer, Sales Associate for SEEDS 2000, comes through for him when ordering what he wants, has good advice—like with the Farm Plan™, and is good about staying in contact." He says to get the seeds early to ensure the sizes you want.

NuSun™ is a Trademark of the National Sunflower Association.

Sunflowers... A Good Alternative

Larry Johnson—Browerville, MN

The Browerville area in Minnesota typically hasn't been known for big sunflower production. But Larry Johnson was very happy with his crop this year and plans to seed them again next year. He farms approximately 600 acres, of which about half are irrigated, growing soybeans, corn, and 100 acres each of light and dark red kidney beans. Sunflowers were a new crop for him this year, grown on dry land. He also trades ground with other farmers for potatoes, which opens up the rotation—allowing for corn and potatoes in between. Larry hauls his corn 35 miles to the ethanol plant, some edible

beans to Menomonie, Wisconsin (but most go to Perham), and sunflowers to Fargo. And, in his spare time, he works for a custom combine operator, either running the combine, or trucking wheat to Superior or Rush City, and corn to Savage.

Larry grew up on a farm and bought his own farm in 1975, which started out as a hobby farm with 12 cows. At



that time he also worked in town as a full time electronic technician. He built up his farm and dairy operation from scratch, ending the dairy with 45 head in 2000. Larry has two grown sons who were very helpful on the farm and very involved with the dairy chores as they grew up. Jeremy is living in Wadena, married to Samantha, with a family of five children, and works for a farm



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Kelly Hasbargen

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Sales Associate

service operation. Eric lives in Omaha with wife Renee, and is a robotics system engineer.

Larry had been looking for an alternative crop to corn because of recent declining profit margins, so he decided to try sunflowers. 2005 was his first year raising them and his first year using SEEDS 2000 product. He raised Defender HO that yielded 3,000 lbs/acre, with 32 test weight. Larry finished harvesting his flowers at about 3 a.m. and says, "I didn't mind at all, with that kind of yield!" His flowers are in the bin, so he said he won't know the oil content until spring. Larry doesn't feel able to compare SEEDS 2000 product to other brands since this was his first year raising sunflowers. However, his custom work and trucking background experience is more than adequate. He says, "Seems like there's less shattering with SEEDS 2000," than competitors he's combined.

Larry is very modest and doesn't want to take credit for his outstanding crop. He says, "I just did what anyone normally does." He sprayed with Sonalan and cultivated, and fertilized according to the recommended rate. Larry did not spray for weevils this year since this is not a heavy sunflower

area. His flowers were seeded on soybean ground, which is not usually recommended because of white mold, but this was very clean ground and wasn't affected by mold.

When asked if he had any suggestions or advice for fellow farmers about planting SEEDS 2000 products, Larry's reply was, "I'll definitely buy more, 'cuz they worked well for me!" The late Curt Stern was the one who steered him in the SEEDS 2000 direction. "Ed Lommel has been good to work with, helpful with planning and planting advice. He returns my calls." Larry has had favorable response, very prompt delivery. His advice is, "Buy early to get the seed size you want."

Sonalan is a trademark of Dow AgroSciences.



"The farmer is the only man in our economy who buys everything at retail, sells everything at wholesale, and pays the freight both ways."

- John F. Kennedy



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NCGA Online Resources



In cooperation with the biotechnology industry, the National Corn Growers Association is leading the effort to create learning tools that will educate corn growers on the importance of Insect Resistance Management (IRM), Weed Resistance Management (WRM), and grain channeling. The integrity of the U.S. corn supply depends on the delivery of commodity corn that meets or exceeds the expectations of our export partners. Through a program called Know Before You Grow®, the NCGA is teaching corn growers the importance of considering the export and marketing implications of each corn hybrid—before they plant.

NCGA has created on-line educational modules for Insect Resistance

Management and Weed Resistance Management, found at www.ncga.com. Growers can complete the training at their own pace and at a time that's convenient for them. These programs were designed to educate corn growers, and offer certified crop advisors, and farm managers an opportunity to receive Continuing Education Units, as well.

The Know Before You Grow database is an easy to use tool that cross references biotechnology events and approval status in the U.S., Japan and Europe. Most importantly, this database allows farmers to check the status of the hybrids they are considering planting. Currently, growers can quickly reference over 3,300 hybrids produced by 77 seed companies.

Customer Quotes

"I had nearly 30 ton/acre of 3171RR silage corn on dry land, which was exceptional. I'm very pleased with the quality—plant health, standability, and the performance in adverse conditions. I plan to seed twice the amount next year!"

—Kurtis Larson, Claremont, SD

"I was very pleased with my CLEARFIELD sunflowers this year. The yield performed as well as our other conventional NuSun hybrids. There was outstanding weed control of grasses & broadleaves, including good suppression of Canada thistle, which didn't produce seeds. A huge advantage was the convenience—I only sprayed once. I will be seeding Viper CLEARFIELD sunflowers next year, I've already ordered the seed."*

—Tim Dekrey, Steele, ND

Breaking the Yield Barrier



Twenty years ago one hundred plus bushel corn yields and "ton" sunflowers were considered maximum yields in the Dakota/northern Minnesota region. In 2005, corn and sunflower growers in some areas experienced what was considered impossible back then—two hundred bushel corn and three thousand pound sunflower yields. Where did these high-end yields come from?

plant breeders over those twenty years. The introduction of new technologies also enhanced potential yield, as well as contributing improved disease and insect resistance and herbicide tolerance. The final ingredient is the improvement in farming practices to accommodate the enhanced genetics and technologies: planting in narrow rows and at higher populations, reduced tillage

to conserve moisture where needed, and fertilizing to achieve maximum yields.

Where will the yield potential end? Well, several corn growers reported having their yield monitors read in excess of 250 bushel per acre corn in areas of their fields. So, maybe two hundred fifty bushel corn is the next logical milestone for corn. SEEDS 2000 is introducing new sunflower hybrids that yielded in excess of four thousand pounds per acre in replicated trials in 2003 and again in 2005. That seems like the next milestone for sunflower. One thing is for sure...it will again take a combined effort, with improvements in genetics, technology and farming practices to surpass the next yield barrier.

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FALL HARVEST...cont. from pg. 1

the temperature the longer the crop may survive. A lot of this has to do with the amount of oxygen held in the water. Warmer water holds less oxygen than cooler water.

Ideally, the corn plant performs best in a temperature range of 55 to 86°F. This summer, according to NDAWN (North Dakota Agricultural Weather Network) data, we never really exceeded the 86-degree limit, allowing the corn plant to operate at near peak efficiency. The excess water we had in many areas had little effect on yields when adequate drainage was available. It was these areas that experienced an exceptional crop average. When standing water wasn't an issue the crop was able to utilize it and set the stage for a big harvest. Where the excess water hurt was where drainage was poor or water couldn't run off within a day or two.

Sunflower yields have also been exceptional in fields where adequate

drainage was available. Sunflowers are a bit of a surprise, because they are most often thought of as a dry weather crop. Although this may be true, it is only because of their deep rooting depth that they have earned this title. In reality the sunflowers' water "needs" are nearly the same as those for corn. With that, the sunflower crop this year was able to put more of its energy into producing a healthier plant and larger seed head, resulting in some phenomenal yields.

All in all, some of the most influential factors to this year's large corn and sunflower crops were: day and nighttime temperatures that were optimal for plant growth, very good soil moisture *all* year long (no dry spells to induce drought), favorable weather remained after the waters receded, and the lack of excessively hot temperatures while the crops were under very wet conditions.



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