

Policy Pennings by Dr. Daryll E. Ray

Noted climatologist says we may be due for a major Midwestern drought

We ran across an interesting article by John Pocock (<http://beefmagazine.com/cowcalfweekly/three-ominous-indicators/>) about Elwynn Taylor, Iowa State Climatologist, who identifies identified three ominous indicators that point to the possibility of a drought in the Midwest and its impact on corn production.

The first indicator is the “La Niña weather pattern that is building in the Pacific Ocean’s equatorial region.” According to Taylor, a La Niña event increases the chances of a below trendline yield for corn by 70 percent.

Taylor then points out that the average time span between major droughts in the Midwest is 19 years and the last one was in 1988—19 years ago.

The third indicator speaks to the weather we have experienced here in the Southeast this summer—a major drought. Taylor said, “Out of the 17 major droughts that have occurred in the Midwest in the past 100 years, 16 were preceded by a major drought in the Southeast.”

As we read that article, we reflected on how complacent we have become with upward trending corn yields. Over the last 12 years, corn yields have risen from 127 bu/ac to some 154 bu/ac, with 2004 seeing a record 160 bushels. Over those twelve years we have seen two minor bobbles, a 6 percent drop in yield in 2002 and an 8 percent drop in 2005. Neither of these caused major problems in the markets. In fact, despite the drop in yield of 8 percent in 2005, the season average price of a bushel of corn sat at \$2.00.

By historical standards, corn yields over the last twelve years have been relatively stable, with eight years of yield gains and four years of yield drops. Only 2004’s jump in yield to 160.4 bu/ac resulted in a yield change greater than 10 percent (12.8).

In contrast to the stability of the last 12 years, corn yields were highly variable in the previous 26 year period (1970-1995). During that period there were 14 years where the corn yields varied upward or downward by 15 percent or more. In most of the down years, weather was the precipitating factor. Even in 1970, with the southern corn leaf blight, tropical-like weather in the Corn Belt enhanced the spread of the disease.

In ten of those fourteen years, we saw a sharp decline in production in one year followed by a recovery in yield the following year. In the other four years we had a large yield increase followed by a yield drop back toward the trendline.

By way of contrast, the 30 year period from 1940 to 1969 saw only three years with a yield change of greater than 15 percent from the previous year.

This was a period that saw the widespread acceptance of hybrid corn varieties with yields moving up from 29 bu/ac in 1940 to 86 bu/ac in 1969.

In the 1930s we saw yield changes of greater than 15 percent in six of the ten years of that troubled decade. In each case a year of yield decline was followed by a recovery the next year.

The yield turbulence of the 1930s was preceded by a relatively stable period from 1900 to 1929. During that 30 year period, in only 6 years was the change in yield greater than 15 percent. In each case, we see a yield failure followed by a yield recovery the next year. In contrast to the 1940-1969 period, farmers in this period planted open pollinated types of corn and the yield trend-line was flat over the entire period.

The 30 years before 1900 was again a period of extreme yield variability arrayed over a flat trendline. Yield variation from the previous year exceeded 15 percent in 14 of the thirty year period.

Taking corn yield variation as a proxy for weather variability, we observe that over the past 140 years, there have been long periods of relatively stable weather patterns interspersed by periods of unstable patterns that trigger wide variability in corn yields.

As we work to develop a rational farm policy regimen, we need to remember that the relatively benign weather we have seen over the past 12 years could last for a while or next year could be the extreme Midwest drought that Taylor talks about. Good policy should work just as well when yields plummet and prices skyrocket as when yields zoom upward and prices fall like a rock.

In the case of the Senate’s Average Crop Revenue provisions and existing crop insurance products and government payment programs, crop farmers will be largely protected if a one-year severe drought occurs and prices skyrocket, because these programs protect farmers against short-term yield and price disturbances.

However, with the absence of reserve stocks, crop demanders have no upside price protection at all, potentially calling into question the US’s reputation as a dependable supplier of agricultural crops to domestic users as well as international customers.

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Originally published in *MidAmerica Farmer Grower*, Vol. 24, No. 48, November 30, 2007
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