Agriculture Weather Outlook: 2011 versus 2012 and the Grains

By WeatherBELL Analytics chief meteorologist Joseph D’Aleo

June 2012, New York: For the second year in a row, weather could very well produce significant volatility for the grains markets due to levels of dryness not previously seen in over two decades.

Recall that last year, the second strongest La Nina on record caused severe drought in the southern US. Meanwhile, heavy snows and spring rain in the northern areas of the US led to the worst flooding since 1927 in the Ohio, Mississippi, and Missouri River basins. As a result, planting was the latest on record in parts of the Corn Belt and there were serious losses to Hard Red Winter Wheat (HRWW) in the Southern Plains. Dryness in the Southern Plains built up a heat ridge that sent plumes of intense heat into the prime growing areas of the Corn Belt during corn’s critical pollination stages.

Although La Nina returned this past winter, it was substantially weaker. The winter and spring of 2012 produced more normal levels of precipitation in the southern states, though much less snow and spring precipitation further north. With a very warm March, farmers were able to plant corn and beans well ahead of normal, in sharp contrast to 2011. The USDA said in March that farmers planted 95.9 million acres of corn, the most since 1937. Informa recently raised that number to 96.8 million acres. With the release of the latest USDA report, due out later this week, the inevitable start of a big step down in production estimates is likely to begin. The most challenging issue this year for farmers has been the expanding and deepening drought over the Corn Belt, worst in the same areas that were flooding at this time last year. Meanwhile, increased precipitation has occurred in parts of the parched Deep South and in the Northern Plains where dryness had emerged as a concern late last growing season.
This has flipped the soil moisture areas of concern. The southern states of Oklahoma, Texas, Louisiana, Mississippi, and Alabama have better conditions while areas further north, with the exception of the far Northern Plains, are hurting seriously for soil moisture as we approach corn pollination.

Topsoil moisture is short/very short in more than 80% of Missouri and Indiana. Topsoil moisture is short/very short in more than 60% of Illinois, Ohio, Kentucky, Kansas, Nebraska and Arkansas, numbers not seen in these areas this early in over 20 years.

In 2011, the heat occurred at the worst time for corn. Though some intense bursts of heat have occurred this season, it is the lack of topsoil and sub-soil moisture that looms large as the big issue. The plants water need triples as they move from the vegetative to pollination stages.

Normally, some dryness stress early on can benefit the plants as they develop deeper rooting systems. Deeper roots help the plant get through dry spells that can occur later in the growing season. The dilemma this year is that the sub-soil moisture is lacking, so the plants will be heavily dependent on rainfall. When and where rainfall does not come, the plants wither.

In the Corn Belt, the most favorable growing conditions are occurring across the Northern Plains where showers and thunderstorms have been abundant.

In areas from Missouri to Illinois, much of Indiana, Kentucky and sections of Ohio, the rains have been consistently absent and soil moisture (top and sub) is inadequate to meet the demands of the crop. The recent hot days, which are normally not an issue, are causing the crops to show increasing signs of stress. Farmers in some areas are reportedly already plowing the corn crop into the dusty ground.

As of the middle of June, more than 1/10th of both corn and soybeans were rated very poor to poor in Illinois (13% and 14% very poor to poor, respectively, for corn and soybeans). The situation was worse in Indiana where 24% of corn and 26% of soybeans was rated very poor to poor. Missouri was close behind with 21% of corn and 29% of soybeans rated poor to very poor. Expect those numbers to grow this week although recent rains may stop decline or even improve them slightly in Iowa and Missouri.

Silking began early this year across the Corn Belt as a result of the warm spring. The transition from silking to pollination is the most critical stage in corn development as it relates to weather stress. Corn requires three times as much moisture during this stage as during the vegetative stage (up to 1.5 inches per week). Moisture and temperature stress during this period can substantially reduce final grain yield.
Currently, the corn crop is in its best shape in Minnesota, Iowa, Nebraska, North and South Dakota. While concern the next few weeks will focus on corn nearing pollination, soybeans are in poorer shape than in any year in the last decade. Once established, soybeans are usually better able to wait out hot, dry periods and revive if the rains come before the critical pod filling stages, usually in August.

With respect to the weather, La Nina waned last year but it returned by the fall and winter. This year we are heading towards an El Nino that is already being reflected in some of the atmospheric measures of the ENSO state. This should result in increased precipitation in the latter half of the summer in at least some of the areas suffering most now from lack of moisture. While this may benefit soybeans, it may come too late to significantly salvage the corn in the hardest hit parts of the dry states.

Elsewhere in the world, the same evolution towards El Nino will likely lead to intermittent monsoon rains in parts of China and India which may affect both corn and beans. Corn in the Ukraine is unlikely to repeat the record yields of 2011. Rains have helped the Safrinha second corn crops in central Brazil but dryness hurt yields in Rio Grande do Sul. Drought had caused prior serious losses to the first corn and bean crops in both Brazil and Argentina.

As for winter wheat, although the US crop is 54% good to excellent (compared to 36% last year) other regions globally are heading in the other direction versus last year. As we approach the finish line on US winter wheat, other countries which had good or even record crops last year are reporting issues including parts of northeast Europe, southeast Ukraine, southern Russia, Siberia, southernmost Brazil, Australia and now even China.

The China National Grains and Oil Information Centre, the official crop bureau in China, reduced its estimate for the overall wheat harvest by 2.3m tonnes to 118m tonnes based on lower yields and poorer quality. Crop prospects have been hurt in part by drought in the northeastern province of Hebei. In addition, the slow advance of the monsoon front means more rains are needed in parts of the North China Plains for corn planting after wheat is harvested. Soybean planting areas have been reduced 6% in China as farmers are allocating more land to more profitable corn and rice.

The China wheat downgrade represents yet another concern over wheat harvests, with dry weather continuing to depress expectations for output in parts of Russia and Ukraine, and Australia.

Australia’s Bureau of Agriculture Resources and Economics and Sciences (ABARES) downgraded its estimate for Australia’s 2012-13 wheat crop to 24.1m tonnes, which would represent an 18.3% drop from last year’s record harvest. This would be the smallest crop in three years and below the average for non-drought years of about 24.5m tonnes. The developing El Nino is partly to blame but given other conditions in the Pacific and Indian Ocean, the reduction is not likely to approach production levels of the middle 2000s.

Meanwhile, in the EU, there were winter grain losses in Spain due to dryness. Replanting was required in parts of the northeast due to dryness and winterkill. After a dry March in the UK and France, wet weather has encouraged fungal diseases such as fusarium, which can lead to lower yields. Also strong winds and driving rains caused some lodging in parts of the UK and northern France.

All of these factors are likely to make a significant dent in global grain surpluses and propel the market higher or at least allow it to buck the headwinds of global economic woes.

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