Introduction to PRISM

2012 Research Review
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“It could be, it might be, it is!” Baseball Insights for Crop Insurance

Summer is upon us as this issue of TODAY® goes to press, and what is summer without some baseball? Personally, I am not an avid baseball fan, but I have fallen in and out of love with the Cubbies over the years, and I do enjoy catching some of the College World Series if scheduling permits. Sports and sporting events can serve as a wonderful metaphor on life, and baseball is no exception.

With that in mind, let’s pull out some trusty baseball quotes—and maybe an obscure quote or two and see if we can gain some insight, possible inspiration, and perspective about our Industry from some of the great sages of our national pastime. So, let’s Play Ball!

Yogi Berra and the Farm Bill

Well, no agriculturally based trade magazine can respectably miss an issue these days without some commentary on the farm bill. Given the state of affairs in D.C. these days, it won’t be tough to knock this one “outta” the park.

Yogi-ism #1) “It’s like deja vu all over again.”

September 30 is just not that far away, and without legislative movement, we could be on the verge of another farm bill extension.

Or to shift gears and quote Jerry Jeff Walker “...we’ve been down this road once or twice before...”

Fortunately, crop insurance is under permanent law, and as such remains the fundamental element of the farm safety net. This is a good thing. Farmers can rely on crop insurance, as can the farm lending community.

Yogi-ism #2) “It ain’t over ‘til it’s over.”

Because the “game” is still being played, Industry must still remain focused, not only on farm bill deliberations, but on the business at hand, serving our customers. It is unclear where the farm bill process will land, and there is a great deal at stake for our Industry. But more importantly, there is more at stake for the farmers and ranchers we serve. While we all await the bottom of the 9th, we need to stay on our toes, know the situation of the game, and be ready if the ball is hit to us.

Harry Caray and Service to Our Customers

Here I defer to the voice of the Chicago Cubs; the late, great Harry Caray.

“I know it is the fans that are responsible for me being here. I’ve always tried in each and every broadcast to serve the fans to the best of my ability.”

Working and striving to the best of our ability is all we can ever do. We will make mistakes, we will get frustrated, and even if we are called out at home, we need to dust ourselves off and continue to do our jobs serving agriculture as best we can the next time we are up to bat.

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The PRISM Climate and Weather System
An Introduction

By Christopher Daly, Oregon State University and Kirk Bryant, Risk Management Agency

Weather and climate are arguably the most powerful drivers of both agricultural and natural systems, and have profound effects on how our society functions. Weather is what we experience day to day, while climate is a longer-term summary of expected weather conditions. In other words, climate is what you expect, and weather is what you get. Both are important in determining what crops can be grown successfully, what plants will thrive in your garden, how roads and buildings are constructed, and even the clothes you wear.

With the advent of computer-based geographic information systems (GIS), global positioning systems, and remote sensing technologies that help us describe and visualize the earth’s surface, many planning and decision-making activities have gone spatial. A wide variety of agricultural, hydrologic, ecological, natural resource, and economic decision support tools are now linked to these technologies in new and exciting ways.

Spatial decision support tools have an insatiable thirst for spatial data sets. Spatial weather and climate data, usually in the form of continuous grids of pixels, are often key inputs to these tools, and form the basis for scientific conclusions, management decisions, and other important outcomes. These grids typically describe minimum and maximum temperature and precipitation over a monthly or daily time step, and are especially useful because they provide wall-to-wall estimates of climate conditions, even where no weather stations exist.

The most widely used spatial climate data sets in the United States are those developed by Oregon State University’s PRISM Climate Group, named for the PRISM climate mapping system. PRISM products are the official spatial climate data sets of the USDA, and are used by thousands of agencies, universities, and companies worldwide. Now, PRISM is being put to work to improve the efficiency and integrity of the U.S. crop insurance program. In this article, we introduce you to the history of climate mapping, how the PRISM weather and climate mapping system was developed, and how it works. In a subsequent article, we will explain how PRISM is being used in crop insurance.

A Little History

Beginning in the early 20th century, official, 30-year average climate maps within the U.S. (most done by state), were created by expert climatologists with pen and paper. Observations from weather stations were plotted on a map, and generalized contours of temperature and precipitation drawn between the stations, based on the subjective opinion of the analyst. The process was tedious and time-consuming. It is not surprising that these maps were updated infrequently throughout the 20th century.

Figure 1. Precipitation: Annual Climatology (1981-2010)

PRISM map of mean annual precipitation, averaged over the years 1981-2010. Thirty years is considered the standard averaging period for describing the long-term climate of a region. The period typically moves forward once per decade (the next official period will be 1991-2020). This map is made up of over 20 million grid cells, each about ½-mile on a side.
By the early 1990s, the most recent official precipitation maps for many states were thirty years out of date. GIS was gaining rapid acceptance, and the demand for digital climate maps was growing rapidly. Computerized statistical algorithms that interpolate values between point observations had become available, but these were generalized functions that were “climate challenged.” They produced unrealistic maps because they lacked information on how the physiographic features of the earth’s surface (such as mountains and coastlines) affected climatic patterns. In other words, there was a wide divide between what we knew about climate patterns and what computerized tools could produce. The timing was right for a new method of creating climate maps that would bring some intelligence to the process.

The Advent of PRISM

A new approach to computerized climate mapping was first developed by Chris Daly in 1991 when he was a Ph.D. student at Oregon State University. The algorithm was written to mimic the thought process an expert climatologist goes through while drawing a climate map. This kind of a program is called an “expert system” in computer science circles.

Precipitation was the most difficult variable map, so he started there. He knew that elevation was the main determinant of precipitation patterns. In fact, many hand-drawn maps were sketched onto topographic maps, because the contours of elevation and precipitation had such similar patterns. The initial program he developed “visited” each pixel on an elevation grid and developed a local statistical relationship for that pixel, called a regression function, between precipitation and elevation, using data from stations in the immediate vicinity. The regression function was used to predict precipitation at the elevation of the pixel.

It turned out that the relationship between precipitation and elevation varied a lot across the landscape, sometimes quite sharply, as in the case of rain shadows. An algorithm was written to automatically divide the terrain into “topographic facets” with several slope orientation categories (hill slopes facing W, NW, N, NE, etc.). Available weather stations were grouped onto these facets, and the precipitation-elevation regression function calculated for stations on each facet separately. In this way, his model did not mix stations on

windward and leeward slopes of mountain ranges, which, even at the same elevation, had very different precipitation amounts. Little by little, other enhancements were made, until the program could recognize and troubleshoot problems as they arose, like an expert climatologist might do. This expert system was called PRISM (Parameter-elevation Regressions on Independent Slopes Model).

Shortly after the development of the initial version of PRISM, the USDA Natural Resources Conservation Service (NRCS) became interested in this work, because they were implementing GIS in their field offices and had a great need for updated, digital, precipitation maps. The NRCS offered to provide funding for the development of proof-of-concept PRISM precipitation maps for Oregon, Idaho, Nevada, and Utah. These were some of the most complex states to map, with snowy mountains, alkali deserts, and everything in-between. The State Climatologists from these states were asked to scrutinize the results, compare them with their own hand-drawn maps, and offer suggestions for improvements. At the end of two years of scrutiny, criticism, and re-dos, they finally agreed that PRISM had produced precipitation maps that equaled or exceeded the quality of their own maps. This led to a multi-year NRCS program to map 1961-90 averages of both temperature and precipitation over all of the lower 48 states. Daly began to collect a team of talented scientists and programmers around him, which would become the PRISM Climate Group. The success of the NRCS project opened the door to many other climate mapping projects, some outside the US, including Canada, China, Mongolia, Taiwan, SE Asia, and Europe. Funding came from a wide variety of sources, including many agencies within the USDA and NOAA, NASA, NPS, USFS, USEPA, NSF, The Nature Conservancy, and others. These analyses and data sets underwent an unprecedented level of peer review, sometimes involving dozens of reviewers. Each map product represented the state of the science for that area.

In the years since its inception, PRISM has undergone nearly constant development, and is now a large, mature model. Some things have remained essentially the same; PRISM still adopts the assumption that for a localized region, elevation is the most important factor in the distribution of climate variables. PRISM still calculates a local climate-elevation relationship for each grid cell, whether it be for precipitation, temperature, dew point,
or other variables, and uses nearby station data to populate the regression function. What has changed is that when PRISM does its climate-elevation regression calculations, it now weights the station data points to control for the effects of a wide variety of physiographic variables. In addition to topographic facets, PRISM now has station weighting functions that account for proximity to coastlines, the location of temperature inversions and cold air pools, and several measures of terrain complexity.

**Time Series Mapping and the Climate Fingerprint**

So far, we have been learning about how PRISM creates long-term climate maps, such as mean monthly and annual precipitation over a thirty-year period (for example, 1961-1990, 1971-2000, etc.). But there is more to climate than long-term averages. Users wanted to know: how variable is the climate? When were the droughts and heat waves and how severe were they? The next logical step was to create a time series of grids where each grid represented one month in one year, not a 30-year average month. PRISM’s first foray into time series mapping was supported by NOAA in the late 1990s, and was quite ambitious: create a 100-year time series of monthly grids, starting in 1895. The problem was that there were few weather stations in 1895, and it was unlikely a map for 1895 would have the same accuracy and detail as one produced using data from, say, 1995. This eventually led to a new interpolation technique that did not rely directly on elevation, but instead relied on what is termed the “climate fingerprint.” The idea behind the climate fingerprint is that patterns in climate caused by the earth’s physiography tend to be repeatable over time. For example, a location that is in a rain shadow today most likely behaved in a similar way 100 years ago. To implement climate fingerprint interpolation, the elevation grid normally used in the PRISM regression calculations was replaced with long-term climate maps, e.g., 1971-2000 averages, which already had the effects of physiographic features built in. The method allowed the creation of climate maps of similar detail, no matter what the year or density of weather stations, because the long-term climate patterns took over where there were no stations.

**Going to the next level for Crop Insurance**

When the USDA Risk Management Agency asked the PRISM Climate Group to help improve their climate and weather data for crop insurance needs, it was clear even more detailed data over a variety of time periods would be needed, from long-term average climate to daily weather. In the next article, we will tell you about the development of PRISM data for crop insurance, and an innovative web portal that allows users to access this information in simple and intuitive ways.
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– Jerry Mease, Winterset, IA, writing with FMH since 1971

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“In a typical year, with five different crops in the ground, it seems like we farm all the time,” said Bill Bridgeforth, a fourth generation farmer from Tanner, Alabama, in the state’s north-east corner. Bridgeforth farms 10,000 acres of cotton, corn, soybeans and canola with his brother Gregory and their sons.

“I’ve always wanted to farm,” he said, adding “I always enjoyed working with my father and brothers.” Bridgeport explained that being a farmer in the Deep South could be a mixed blessing. On the positive side is the region’s extended growing period, which allows double cropping.

“Typically, we start planting our corn on March 10, plant soybeans on April 10, and cotton on April 25,” he explained. “By May 25, we harvest our canola, and then plant soybeans behind the canola,” he said. “And then we harvest wheat on June 5 and plant soybeans behind that wheat,” he added.

But the negative side of the extended growing season is the extreme weather swings, like powerful thunderstorms, tornadoes and hurricanes that can also plague the region. “There’s just so much variability in the weather here in the south,” he said.

That is why Bridgeforth buys crop insurance every year. In fact, he has purchased crop insurance policies for the last 35 years in a row. “I can’t even think about farming without crop insurance,” he said.

“We buy crop insurance because the cost of production is so high, you’d have to be crazy to not purchase crop insurance every year,” he said. Bridgeforth explained that with input costs rising every year, it costs more and more to put all of his crops into the ground. “We have to have crop insurance in case we have a bad year, or a bad crop, and we need to have some help making ends meet,” he said.

The cost of farming on an operation the size of Bridgeforth’s would be staggering to those outside of agriculture, who are likely unfamiliar with the high cost of production faced by modern farmers. Crop insurance is no exception to that rule.

Bridgeforth says that they spend several hundred thousand dollars a year purchasing crop insurance, but that is not even their biggest cost of production, given the high input costs they face. “When I do our budget, I don’t think twice about buying crop insurance, it’s just like buying fuel, seed and fertilizer,” he said.

Although most years are good for Bridgeforth, having crop insurance as a line item in his budget paid off in 2012, as northeast Alabama, and much of the center of the country, found itself strangled by a historic drought.

The drought began with an extremely hot May and June, and produced the worst corn crop Bridgeforth had ever had. “It was so bad, that while we would ordinarily start harvesting our corn on the 20th of August, we started picking it on the 15th of July,” he said. “Because there really wasn’t much there in the field and it made better sense to get it picked,” he said.

In addition to his busy farming schedule, Bridgeforth is also the Chairman and a charter member of the National Black Growers Council, which was founded three years ago and serves as a network for black men and women who are involved in agriculture. “Our mission is to improve the viability and profitability of the black row crop farmers,” he said. “And we hope to develop black talent for the next generation of farmers.”

The advice he would give to all the growers he knows, says Bridgeforth, is to purchase crop insurance every year. “There are lots of challenges facing a farmer: the weather, the cost of production, the cost of labor, and of course a market that can fluctuate wildly,” he said. “Just a good crop is not enough. You need to have a good crop and a good price.”

Bridgeforth was a member of the farmer panel that spoke during the 2013 Crop Insurance Industry Annual Convention. He told convention attendees that he knows firsthand why bankers look to insurance as a way to protect a farmer’s investment. “We’ve had some pretty good years, and we’ve had some years that, if it hadn’t been for crop insurance, we probably wouldn’t be in business today.”
2012 U.S. CROP-HAIL LOSS RATIO BY STATE
All Crops • All Losses • All Policies

STATE PREMIUMS LOSSES LOSS RATIO %
Nebraska 189,305,467.00 132,889,303.00 70.20
Iowa 120,560,288.00 88,571,684.00 73.47
North Dakota 99,063,637.00 30,728,595.00 31.02
Minnesota 96,992,176.00 105,848,760.00 109.13
Illinois 74,844,418.00 53,208,219.00 71.09
Kansas 69,594,642.00 31,480,414.00 45.23
South Dakota 54,190,941.00 41,703,214.00 76.96
Texas 47,332,676.00 35,604,730.00 75.22
Montana 29,186,127.00 25,270,780.00 86.45
Indiana 20,785,653.00 36,193,386.00 174.13
Missouri 19,538,881.00 16,657,506.00 85.25
Idaho 16,252,660.00 6,806,476.00 41.88
Arkansas 14,416,281.00 10,458,655.00 72.55
Wisconsin 14,233,101.00 7,723,467.00 54.26
Colorado 13,880,511.00 6,355,745.00 45.79
Washington 13,298,023.00 27,012,627.00 203.13
Oklahoma 12,366,868.00 9,230,919.00 74.64
Ohio 9,915,815.00 4,623,951.00 46.63
North Carolina 8,665,125.00 9,517,468.00 109.84
Michigan 6,656,076.00 3,757,118.00 56.45

All State Totals 956,772,323.00 712,862,676.00 74.51

Data Source: NCIS 6-B Adjusted Verified Totals as of 06/20/2013.
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### 2012 U.S. MPci Loss Ratio by State

All Crops • All Losses • All Policies

<table>
<thead>
<tr>
<th>STATE</th>
<th>PREMIUMS</th>
<th>LOSSES</th>
<th>LOSS RATIO %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas</td>
<td>1,081,148,145</td>
<td>1,413,363,294</td>
<td>130.73</td>
</tr>
<tr>
<td>North Dakota</td>
<td>963,268,247</td>
<td>244,424,466</td>
<td>25.37</td>
</tr>
<tr>
<td>Iowa</td>
<td>902,648,650</td>
<td>2,012,631,398</td>
<td>222.97</td>
</tr>
<tr>
<td>Minnesota</td>
<td>824,599,034</td>
<td>245,638,721</td>
<td>29.79</td>
</tr>
<tr>
<td>Kansas</td>
<td>808,170,060</td>
<td>1,371,165,860</td>
<td>169.66</td>
</tr>
<tr>
<td>Illinois</td>
<td>772,592,879</td>
<td>3,493,645,035</td>
<td>452.20</td>
</tr>
<tr>
<td>South Dakota</td>
<td>700,966,500</td>
<td>1,112,024,686</td>
<td>158.64</td>
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<tr>
<td>Nebraska</td>
<td>668,800,656</td>
<td>1,549,972,497</td>
<td>231.75</td>
</tr>
<tr>
<td>Indiana</td>
<td>437,440,421</td>
<td>1,479,943,417</td>
<td>338.32</td>
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<tr>
<td>Missouri</td>
<td>367,482,324</td>
<td>1,156,522,534</td>
<td>314.72</td>
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<tr>
<td>Ohio</td>
<td>325,974,687</td>
<td>405,959,939</td>
<td>124.54</td>
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<tr>
<td>Wisconsin</td>
<td>269,496,020</td>
<td>452,902,346</td>
<td>168.06</td>
</tr>
<tr>
<td>California</td>
<td>260,822,031</td>
<td>111,353,657</td>
<td>42.69</td>
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<tr>
<td>Oklahoma</td>
<td>253,384,680</td>
<td>210,804,609</td>
<td>83.20</td>
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<tr>
<td>Colorado</td>
<td>217,829,180</td>
<td>277,505,149</td>
<td>127.40</td>
</tr>
<tr>
<td>Montana</td>
<td>205,712,160</td>
<td>105,568,734</td>
<td>51.33</td>
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<tr>
<td>North Carolina</td>
<td>201,594,588</td>
<td>84,950,539</td>
<td>42.14</td>
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<tr>
<td>Michigan</td>
<td>195,197,017</td>
<td>236,017,800</td>
<td>120.91</td>
</tr>
<tr>
<td>Georgia</td>
<td>172,605,353</td>
<td>62,548,207</td>
<td>36.24</td>
</tr>
<tr>
<td>Kentucky</td>
<td>144,530,908</td>
<td>486,703,652</td>
<td>336.75</td>
</tr>
</tbody>
</table>

**All State Totals**: 11,100,957,230

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Your connection to crop protection.
Each year NCIS sponsors research projects on a variety of crops. The purpose of the research varies. The purpose of the research can be to study new crops or changes in crop varieties/practices, to verify accuracy of loss charts and procedures, or develop improved loss instructions. All research projects are conducted for a period of at least three years. If, for some reason, results are not obtained for one or more years, the research project can be extended. University experiment stations and agricultural colleges conduct the research, often at more than one location across the United States. The results of the 2012 research program are summarized below. It is important that these results are not used exclusively, but combined with the results from previous years’ research and any subsequent research. In order to provide the best loss adjustment procedures for NCIS members.

Canola—Oklahoma

Research on canola has focused on the spring types which have been grown in Canada and the upper tier of states in the US from the early 1980’s. The research and loss procedures were developed based on the spring type. Recent breeding has improved the winter survival of winter types of canola. The climate and growing season/conditions differ tremendously in Oklahoma and Kansas where the emphasis in winter canola production is. The research that is being done in Oklahoma is being done on these new winter canola varieties to determine if the response to damage at the various growth stages different that that observed with spring canola types.

The research in Oklahoma was done on winter canola hybrid to determine the influence of early defoliation (8 to 10 leaf) and damage to the developing flower stem (bolt/early flower) on canola production. Previous research has studied spring canola types. It was felt that with development of viable winter canola varieties and industry, that research should be done to determine if there are differences in the response to damage between these two types.

The plots were seeded in late September 2011 on a conventionally tilled seedbed with harvest occurring in mid-May 2012. Defoliation treatments of 50 and 100 percent were applied to eight to 10 leaf canola in late February 2012. The 50 percent defoliation resulted in only a four percent loss while the 100 percent defoliation resulted in a 52 percent loss. Research on spring types has shown approxi-

### Table 1.

<table>
<thead>
<tr>
<th>Defoliation</th>
<th>YIELD (lbs/acre)</th>
<th>50%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Site 1</td>
<td>Site 2</td>
<td>Site 1</td>
</tr>
<tr>
<td>Check</td>
<td>1917</td>
<td>1481</td>
<td>1917</td>
</tr>
<tr>
<td>2 Leaf</td>
<td>1444</td>
<td>—</td>
<td>1442</td>
</tr>
<tr>
<td>4 Leaf</td>
<td>—</td>
<td>1526</td>
<td>—</td>
</tr>
<tr>
<td>6 Leaf</td>
<td>1704</td>
<td>1460</td>
<td>1125</td>
</tr>
<tr>
<td>8 Leaf</td>
<td>1429</td>
<td>—</td>
<td>1281</td>
</tr>
<tr>
<td>10 Leaf</td>
<td>1329</td>
<td>1421</td>
<td>1329</td>
</tr>
</tbody>
</table>
approximately a 30 percent loss with 100 percent defoliation of 10 leaf spring canola.

Treatments of 50 and 100 percent defoliation were applied at early bolting—approximately six to 10 inch tall bolt (Mid-March)—which resulted in losses of 54 and 87 percent, respectively. Other treatments were done in late March which involved the cutting off of the flowering stem below the main flower cluster on main stem; clipped below all open flowers; main stem crimped below main flower cluster; and main stem crimped below oldest pod. These treatments resulted in losses of less than 20 percent.

**Canola—Saskatchewan**

This research was done to reexamine the influence of defoliation during the early stages of hybrid canola growth and development. The original research was done in the early 1980s on open pollinated varieties that have very different growth rates and plant vigor compared with the hybrid varieties grown currently. This trial was done at two locations just out of Saskatoon, Saskatchewan during the 2012 growing season. The treatments were based on different leaf stages of 2, 4, 6, 8, and 10 full leaves with defoliation levels of 0, 50, and 100 percent. The response to the defoliation treatments are shown in Table 1.

Additional treatments were considered to examine the effects of removing the flower stem at 10 leaf canola/approximately six to 10 inch tall flower bolt. The 50 percent removal resulted in an approximate 25 percent while the 100 percent resulted in a 50 percent loss at site one. The second site had a slight increase in yield of 14 percent with 50 percent of the flower stem cutoff while the 100 percent treatment resulted in a 33 percent loss.

**Corn—Illinois and Minnesota**

This is the first year of a corn research project that is focused on the accuracy of the second/multiple loss procedures for corn. The research looked at defoliation applied at a single stage of growth, and two stages of growth, and at three stages of growth. The stages were 10 leaf, 15 leaf, and tasseling. The levels of defoliation were 0, 50, and 100 percent defoliated. We then measured the differences in yield between the expected loss from our current charts and the actual measured loss. The numbers in Table 2 followed by the * are significantly different from the expected results.

**Corn—Ohio, Kansas, Virginia and North Dakota**

This research is being conducted to determine the accuracy of the maturity line appraisal method for corn. Previous research suggested that the current maturity line appraisal method may be underestimating the final yields when done at the early milk lines. The research has been done in a total of six states to determine the actual corn fill rates and if the current factors are adequate or if different fac-

![Dr. Shaun Godsey applying treatments on winter canola in Oklahoma.](image)

![Colleen Redlick clips canola at the field trial in Saskatchewan.](image)

<table>
<thead>
<tr>
<th>Table 2.</th>
<th>Leaf Stage</th>
<th>Expected Loss (%)</th>
<th>Measured Loss -MN</th>
<th>Measured Loss -IL</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% 15L</td>
<td>51</td>
<td>36*</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>50% Tassel</td>
<td>31</td>
<td>26</td>
<td>17*</td>
<td></td>
</tr>
<tr>
<td>50% 10L + 50% 15L</td>
<td>16</td>
<td>22</td>
<td>2*</td>
<td></td>
</tr>
<tr>
<td>50% 10L + 50% Tassel</td>
<td>33</td>
<td>34</td>
<td>10*</td>
<td></td>
</tr>
<tr>
<td>100% 10L + 50% 15L</td>
<td>18</td>
<td>29*</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>100% 10L + 50% Tassel</td>
<td>36</td>
<td>33</td>
<td>21*</td>
<td></td>
</tr>
<tr>
<td>50% 10L + 50% 15L + 50% Tassel</td>
<td>35</td>
<td>19*</td>
<td>22*</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3.</th>
<th>Node Cut</th>
<th>2</th>
<th>4</th>
<th>8</th>
<th>12</th>
<th>16</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal</td>
<td>10%</td>
<td>7%</td>
<td>7%</td>
<td>9%</td>
<td>11%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Cut 2 Nodes</td>
<td>10%</td>
<td>7%</td>
<td>6%</td>
<td>4%</td>
<td>5%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Cut 4 Nodes</td>
<td>0%</td>
<td>10%</td>
<td>7%</td>
<td>4%</td>
<td>1%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
tors may be more appropriate. The research indicates that the current appraisal method underestimates yield during the milk line stages. The appraisal method estimated yield within five percent of the actual yield when the appraisal was done in the extended kernel stage.

**Cotton—Arizona**
This study was initiated to determine the effects of plant cutoffs in cotton, that is specific to the growing conditions of Arizona. This research examined at the cutoffs during vegetative and reproductive stages of growth. The treatments were cutoffs at node 2, 4, 8, 12, 16, and 24 with the cutoff occurring at the top node, and then at 2 nodes and 4 nodes below the top node. An example would be at node 16, the cutoffs would occur at C16, C14, and C12.

The growth stage at which the plant cutoffs were removed had a significant effect on cotton yield. The loss percentages were consistently lower than what the current charts would suggest.

**Cotton—South Carolina**
This study was initiated to determine the effects of plant cutoffs in cotton that is specific to the growing conditions of South Carolina. The research was conducted under dryland and irrigated conditions and examines cutoffs. This study looks at the cutoffs during vegetative and reproductive stages of growth. The treatments were cutoffs at node 2, 4, 8, 12, and 16 with the cutoff occurring at the top node, and then at 2 nodes and 4 nodes below the top node. An example would be at node 16, the cutoffs would occur at C16, C14, and C12.

The growth stage at which the plant cutoffs were removed had a significant effect on cotton yield. The loss percentages were consistently lower than what the current charts would suggest. The later stages of development actually experienced increased yields under irrigation from the removal of the upper most nodes. See Table 3. The loss percentages were consistently lower than what the current charts would suggest.

**Cotton—Texas**
This study was initiated to determine the effects of stand reduction in cotton that is specific to the growing conditions of the High Plains of Texas. The trial was conducted under dryland and irrigated conditions and looks at the stand reduction during vegetative stages of growth. The treatments were stand reductions, based on number of seed planted,

<table>
<thead>
<tr>
<th>Node Cut</th>
<th>2</th>
<th>4</th>
<th>8</th>
<th>12</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal</td>
<td>4%</td>
<td>2%</td>
<td>4%</td>
<td>5%</td>
<td>-4%</td>
</tr>
<tr>
<td>Cut 2 Nodes</td>
<td>9%</td>
<td>3%</td>
<td>13%</td>
<td>-3%</td>
<td></td>
</tr>
<tr>
<td>Cut 4 Nodes</td>
<td>15%</td>
<td>22%</td>
<td>14%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cotton architecture when nodes were removed at node 16 of 16 in South Carolina trial.

Cotton architecture when nodes were removed at node 8 of 8 in South Carolina trial.

Cotton architecture when nodes were removed at node 4 of 4 in South Carolina trial.
of control, 20, 40, 60, 80, and 90 percent for three different varieties. See Table 5.

The data presented are the averages over the three varieties. Weather conditions were extremely difficult for growing cotton, especially under the dryland conditions due to extreme drought. The response to the various treatments varied and will be further examined to determine their fit before any changes are incorporated into the loss procedures.

**Dry Field Peas—North Dakota**

2012 was the second year for this trial examining node removal or cutoffs in field peas. The current varieties used for dry pea production are almost exclusively semi-leafless varieties that have little to no leaf area but rather an enlarged stipule at the base of each node or branch. This leaves no "defoliation" as a means of determining losses, so we are left with cutoffs or node removal as the way to determine the losses due to hail damage. Treatments consisted of the plant having 0, 25, 50, 75, or 100 percent of the above ground nodes removed at the four, eight, 12, 16 node stages and at the second flower bloom (approximately 20 nodes). See Table 6. The 2012 growing season was different than 2010 or 2011 because it was more "normal"—drier than either year and warmer than either year.

**Dry Field Peas—Washington**

The state of Washington is a traditional growing area for dry field peas. The climate is much different than Saskatchewan or North Dakota in that the summer is much warmer and drier than in the upper Great Plains. Field peas may not have as much potential for recovery if cutoff by hail as the plant develops because of this. A trial was initiated in 2010 to study the affect of hail on cutoffs of dry field peas. The current varieties used for dry pea production are almost exclusively semi-leafless varieties that have little to no leaf area but rather an enlarged stipule at the base of each node or branch. Cutoffs or node removal appears as the only means to determine the losses to hail damage. Treatments consisted of the plant having 0, 25, 50, 75, or 100 percent of the above ground nodes removed at the 4, 8, 12 node stages and at the second flower bloom. Removal of nodes at the 4-node stage had little effect on the production of the peas. Losses for the 8-node treatment were not very severe until reaching 100 percent of the nodes removed. The losses increased as the age of the plant advanced especially with damage of 75 or 100 percent of the nodes removed. See Table 7.

**Rice—Arkansas**

This study was developed to examine the tendency for some of the new hybrid rice varieties to shatter, compared to a conventional rice variety. Various observations have been made over the past five years that the new hybrid rice varieties have a greater yield potential than the conventional varieties, but that under field conditions they may also have a greater tendency to shatter the seed before harvest. This experiment looked at the conventional variety "Wells" and compared these to the hybrid varieties "Arize 1003","}

### Table 5.

<table>
<thead>
<tr>
<th>Level of Strand Reduction</th>
<th>Dryland</th>
<th>Irrigated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>20%</td>
<td>6%</td>
<td>14%</td>
</tr>
<tr>
<td>40%</td>
<td>32%</td>
<td>21%</td>
</tr>
<tr>
<td>60%</td>
<td>20%</td>
<td>-3%</td>
</tr>
<tr>
<td>80%</td>
<td>45%</td>
<td>37%</td>
</tr>
<tr>
<td>90%</td>
<td>66%</td>
<td>36%</td>
</tr>
</tbody>
</table>

### Table 6.

<table>
<thead>
<tr>
<th>Nodes Removed</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Losses at Stage V4</td>
<td>7%</td>
<td>14%</td>
<td>21%</td>
<td>34%</td>
</tr>
<tr>
<td>Losses at Stage V8</td>
<td>8%</td>
<td>14%</td>
<td>27%</td>
<td>84%</td>
</tr>
<tr>
<td>Losses at Stage V12</td>
<td>12%</td>
<td>20%</td>
<td>38%</td>
<td>100%</td>
</tr>
<tr>
<td>Losses at Stage V16/R1</td>
<td>16%</td>
<td>30%</td>
<td>59%</td>
<td>100%</td>
</tr>
<tr>
<td>Losses at Stage R2</td>
<td>24%</td>
<td>44%</td>
<td>78%</td>
<td>100%</td>
</tr>
</tbody>
</table>

### Table 7.

<table>
<thead>
<tr>
<th>Nodes Removed</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Losses at Stage V4</td>
<td>-%</td>
<td>16%</td>
<td>-%</td>
<td>21%</td>
</tr>
<tr>
<td>Losses at Stage V8</td>
<td>32%</td>
<td>48%</td>
<td>53%</td>
<td>51%</td>
</tr>
<tr>
<td>Losses at Stage V12</td>
<td>42%</td>
<td>61%</td>
<td>69%</td>
<td>100%</td>
</tr>
<tr>
<td>Losses at Stage V16</td>
<td>68%</td>
<td>69%</td>
<td>93%</td>
<td>100%</td>
</tr>
<tr>
<td>Losses at Stage R2</td>
<td>66%</td>
<td>72%</td>
<td>95%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Burton Johnson checking Dry Field Pea trial in North Dakota.
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“CLXL729”, “CLXL745”, “RU1102071” and “XL723.” These varieties were planted within the rice variety tests that were planted at seven different locations for the rice growing areas of Arkansas. Just prior to harvest, ten representative heads of each variety tested were clipped and placed in a bag. The ten heads were then “slapped” against the collector’s leg ten times resulting in seeds that either remained attached to the panicle or were loose. These seeds were then weighed and counted to determine the percent of shatter for each variety. See Table 8. The incidence of shatter was greater in 2011 than in either 2010 or 2012 for all varieties, including the conventional “Wells.”

**Soybeans—Missouri**

A trial that began in 2009 continued to look at the removal of nodes at various times during the vegetative and reproductive stages. The stages that were studied were the V4, R1, and R3 stages with node removal rates of 25, 50, 75, and 100 percent. The differences in response to the level of node removal at the different stages are similar to those shown in previous studies in Indiana and Iowa. See Table 9.

**Soybeans—North Dakota**

A trial that began in 2009 was continued to investigate the removal of nodes at various times during the vegetative and reproductive stages. The stages that were studied were the V4, R1, and R3 stages with node removal rates of 25, 50, 75, and 100 percent. The differences in response to the level of node removal at the different stages are similar to those shown in previous studies in Indiana and Iowa. See Table 10.

**Wheat—Washington**

This trial was done to research the different factors that can influence the yield of soft white winter wheat in the Pacific Northwest. This research looked at four different seeding rates for two different varieties in two different climatic areas of wheat production in Washington State. The seeding rates were 50, 75, 100, and 125 percent of “normal” for the different growing areas. Some of the factors that were mea-

---

**Table 8.**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Percent of Shatter—Three Year Average</th>
<th>Based on Weight</th>
<th>Based on Kernel Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arize 1003</td>
<td>44.8%</td>
<td>40.1%</td>
<td></td>
</tr>
<tr>
<td>CLXL729</td>
<td>63.5%</td>
<td>55.6%</td>
<td></td>
</tr>
<tr>
<td>CLXL745</td>
<td>50.5%</td>
<td>44.7%</td>
<td></td>
</tr>
<tr>
<td>XL723</td>
<td>63.7%</td>
<td>59.7%</td>
<td></td>
</tr>
<tr>
<td>RU1102071</td>
<td>32.5%</td>
<td>30.8%</td>
<td></td>
</tr>
<tr>
<td>Wells</td>
<td>37.3%</td>
<td>31.8%</td>
<td></td>
</tr>
</tbody>
</table>

**Table 9.**

<table>
<thead>
<tr>
<th>Nodes Removed</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage V4</td>
<td>6%</td>
<td>3%</td>
<td>1%</td>
<td>51%</td>
</tr>
<tr>
<td>Stage R1</td>
<td>0%</td>
<td>4%</td>
<td>19%</td>
<td>100%</td>
</tr>
<tr>
<td>Stage R3</td>
<td>11%</td>
<td>35%</td>
<td>76%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Dr. Burton Johnson looking at regrowth from the soybean node removal trial in North Dakota.
The number of plants per foot of row was the lowest under the 50 percent seeding rate for the irrigated site at Othello and the dryland site of Lind, but did not differ between the other three seeding rates for either variety. The number of heads per plant was highest for the lower seeding rates for “Eltan” at Othello and at Lind. The variety “Xerpha” had a significantly greater number of heads per plant at Lind but no significant difference at Othello under irrigation. The numbers of kernels per head at Lind were significantly higher for the low seeding rate as compared to the other three seeding rates at Lind. The numbers of kernels per head under irrigation at Othello were not significantly different for “Eltan” at any seeding rate but were lower for the 125 percent seeding rate of “Xerpha” compared to the other seeding rates. Yields at Lind for both “Eltan” and “Xerpha,” and at Othello for “Xerpha” were greater for the 75, 100, and 125 percent seeding rates compared to the 50 percent seeding rate while there was no difference between the higher three seeding rates. The yield for “Eltan” was greater for the 100 percent seeding rate when compared to the 50 percent seeding rate. This trial will continue in 2013 at all four locations—the two used in 2011 (Davenport and Pullman); and the two from 2012 (Lind and Othello).

Summary

The results from these research trials show that there is still much to learn about how the plants respond to damage. The results have shown that soybean plants recover nicely from early damage and low levels of node removal. NCIS will determine the impact the results have on the current loss adjustment procedures and if they need to be changed.

More research is needed on cotton and the other crops currently being studied. The research on cotton, if it continues to produce the same sort of results, could have an impact on how losses are determined and the amount of those losses.

The NCIS research program could not happen without the support of member companies and their staff. For over 90 years this research has provided the science behind the industry loss adjustment procedures. This means losses are paid fairly and accurately maintaining program integrity.

---

**Table 10.**

<table>
<thead>
<tr>
<th>Nodes Removed</th>
<th>LOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>Stage V4</td>
<td>-4%</td>
</tr>
<tr>
<td>Stage R1</td>
<td>-6%</td>
</tr>
<tr>
<td>Stage R3</td>
<td>0%</td>
</tr>
</tbody>
</table>

---

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Recent events have demonstrated that many forms of risk are prevalent in agriculture. These risks often compound the financial impacts for farm business managers. In 2012 a major drought plagued much of the country, particularly the Mid-West. In 2013, the same areas had excellent spring moisture while some areas have had excess moisture. These weather oscillations have resulted in record high commodity prices in 2012-13 and declining new crop prices in 2013 as we go to press.

For an individual farm manager, risk management involves optimizing expected returns subject to the risks involved and the risk tolerance of the operator. The consequences of their decisions are generally not known when the decisions are made. Furthermore, the outcome may be better or worse than expected. The two situations that most concern agriculture producers are: 1) a high probability of adverse consequences; and, 2) would those adverse consequences significantly disrupt the business?

Risk is what makes it possible to make a profit. If there was no risk, there would be no return to the ability to successfully manage it. For each decision there is a risk-return trade-off. Anytime there is a possibility of loss (risk), there should also be an opportunity for profit. Growers must decide between different alternatives with various levels of risk. Those alternatives with minimum risk may generate little profit. Those alternatives with high risk may generate the greatest possible return but may carry more risk than the producer will wish to bear. The preferred and optimal choice must balance potential for profit and the risk of loss.

Because of the multiple sources of risk faced by producers, comprehensive strategies that integrate several responses to variability are often necessary for effective risk management. The particular combination used by an individual farmer will depend on the individual’s situation, the types of risk faced, and the risk attitudes or preferences. Some risk responses such as vaccinations, preventative maintenance, feed inventories, and irrigation act primarily to reduce the chance that an adverse event such as disease, breakdown, and drought will occur. Other responses have the effect of providing protection against adverse consequences by transferring some of the risk to someone else such as insurance and forward pricing. Producers find many different ways to implement these principal risk responses.

The products offered through the crop in-

Dr. Art Barnaby leads a discussion at a Crop Insurance Conference.
insurance program are a major tool to provide protection against low yields and/or low commodity prices. The crop insurance decisions, however, interact with other decisions made by the grower, the grower’s risk tolerance and the financial position of the business. Collaborating strategies include production practices, marketing decisions and farm program participation. Crop insurance agents are one of a number of professionals who interact with producers to help their clients make profitable risk management decisions. The crop insurance decisions must be consistent and complementary with other decisions.

Crop insurance agents receive extensive training from companies on the details of insurance policies and procedures. To be effective risk management agents, those crop insurance strategies must be put in the broader context of the whole business.

With this objective in mind, the three states of Colorado, Kansas and Nebraska collaborated a number of years ago to conduct a one-day workshop in each state to provide training in how crop insurance interacts with other risk management tools. The workshop is also designed to put the current risk management situation for producers in perspective. Oklahoma has subsequently joined the consortium. This will be the 15th year these workshops have been conducted. Many participants have attended at least 10 workshops; some attended all of the previous 14.

The crop insurance industry has been a strong supporter. Each spring, representatives of all the crop insurance companies that write insurance in the four states join university extension specialists from the four states to plan the next conference. It should be noted that NCIS provided an impetus for these workshops to get started by securing grant funds from RMA to help defray some of the costs of the initial workshops. Workshops with similar goals are conducted in other states including Iowa, North Dakota, Minnesota, Pennsylvania, and Maryland.

Reference
The NCIS industry awards were established in 2001 to honor those individuals who provide exemplary service to the industry as a whole and/or to producers. The award criteria has been changed slightly and a new award category has been added.

Outstanding Service Award
This award is presented to a crop insurance agent or individual outside of the industry who provides exceptional service industry-wide and outstanding outreach efforts to all farmers, especially limited-resource and/or socially disadvantaged farmers.

Industry Leadership Award
This award, targeted primarily to members of the NCIS regional/state crop insurance and/or NCIS standing committees recognizes individuals who are directly involved in the crop insurance industry and who consistently serve the industry by providing outstanding leadership. One award may be given to a member of a regional/state crop insurance committee and/or a member of a standing committee.

Lifetime Achievement Award
This new category of award will be given to those people who have served or are currently serving in leadership capacities within the industry who exhibit(ed) outstanding leadership, guidance and knowledge to and of the crop insurance industry.

Criteria for all awards are:
1. Unyielding personal and business ethics.
2. Demonstrated service above and beyond the crop insurance industry.
3. Represents themselves, their company and the crop insurance industry well.

The winners will be presented with their awards at the crop insurance industry annual convention held in February of each year.

All nominations must be submitted in writing to NCIS by October 15, 2013, for awards to be presented at the 2014 Annual Convention. For nomination information and forms to be submitted, please visit the NCIS website at www.ag-risk.org to download. If you have any questions regarding the criteria or whom is eligible for the awards, please contact Laurie Langstraat at NCIS at lauriel@ag-risk.org or 913-685-2767.
Business planning requires writing because writing clarifies concepts, focuses thinking, and reduces selective recall. It also helps identify issues that otherwise may be overlooked. Documenting, that is creating a written record of the decisions you make, the actions you intend to take, and the assumptions upon which they are both based, is essential to good farm business management. Identifying a structure to organize, update, and share the information needed to operate your farm is essential to effective farm business planning. This step encourages you to think about how you can organize, document, summarize, share, and revise the information about your farm business that is collected and developed during the planning process. This includes:

• Documenting your business planning and vision for the future;

• Preparing to share your vision with others; and,

• Implementing a procedure for repeating and updating/revising some or all of the planning process on a regular basis.

Documenting Your Planning Thoughts

One product of the planning process can be a document which summarizes the owners’ thoughts about where the business is to go in the long-term and the strategy to reach that goal. Once prepared, the owners will likely use the document as they make decisions. They also may find that they use the information to answer questions posed by others, such as family members, lenders, landlords, future owners, partners/investors, employees, regulators, suppliers, and other people who have an interest in the success of the farm business.

Preparing a written record of the ideas that were developed during the planning process involves cost—often the primary cost is the time and frustration of recording the ideas. However, a written record also offers benefits which often outweigh the costs. These benefits include:
The first challenge in preparing and documenting the plan is to organize the information to maximize its usefulness. You will likely collect a substantial amount of information about your farm business during the planning process. The challenge then is to organize the information in a way that makes it easy to share with others.

There are numerous advantages to using a computer in this process. A computer should improve the accuracy and ease of computations and revisions, as well as the process of preparing portions of the information to share with others. You will likely collect a substantial amount of information about your farm business during the planning process. The challenge then is to organize the information to maximize its usefulness. You may want to prepare a short document, sometimes called an executive summary, that briefly describes the farm operation and the direction the you are taking it. For example, an executive summary would include a mission statement that specifically describes why you are in business, what you expect your business to be, and who your customers are. An abbreviated summary of the results from each of the steps in the planning process could be part of the executive summary.

Alternatively, the document could describe the following items:

- The desired farm, including a mission statement (Step 5 or 6);
- How the desired farm will be operated (Step 5 or 6);
- How the current farm will be transformed into the desired farm (Step 7 but only if the current business is being changed);
- Contingency plans and risk management strategies (Step 8); and,
- A monitoring and control process (Step 9).

You will know you have adequately documented your thought process when you can retrieve your plan, the data on which you based your plan, and your reasons for selecting the plan. Another measure of sufficient documentation is when you and others can understand the plan and your thinking.

It also has been suggested that farmers consider working with others (such as a farm management consultant, lender, or family friend) in preparing and documenting the plan. These individuals can provide feedback as to whether the documents are understandable. One purpose of this step is to assure the information is organized so portions of it can be easily shared with others.

**Prepare an “Owner’s Manual”**

A suggested management practice is to develop an “Owner’s Manual” for your farm. Documenting and describing the functions performed on the farm is a very worthwhile planning activity. In the event of a crisis someone else could move forward and see that critical activities take place. For example, a death or serious health crisis to you or someone else on the farm could develop into a serious financial crisis as well if certain activities are not timely performed. Moreover, going through the exercise of writing a “how-to” description of farm activities will help you evaluate how things are being done. Perhaps a more simple or cost effective way of accomplishing the same activity will come to mind.

**Sharing Results of the Planning Process**

The information resulting from the planning effort is private; it belongs to you, as the business owner, and your family. You choose how to organize it and with whom to share the plan. You do not need to share your ideas with anyone except the family who is involved in the farm. However, the added confidence that you gain as a result of accumulating the information and completing the planning
process often may convince you to share portions of the plan with others (such as a lender or landlord).

The information that you share will likely depend on who is receiving it. For example, a lender needs to know different information than does a landlord or a family member. You have to determine what information is appropriate for each recipient.

Selecting which information to share with whom, however, does not mean the plan is being changed. Instead, this practice reflects that no one needs to know your entire plan, and that the type of information others need to know varies.

Revising the Vision for the Future

Business planning is not an exercise to be completed once and then forgotten. Instead, it is a process that is repeated—repeated at regular intervals, or more often if the need arises. Some farmers describe the process as: “ongoing; never interrupted; at times you focus on planning and take the time to record your thoughts and computations, but the rest of the time while operating the farm, you are almost always thinking about the long-term future and planning for it.”

When business owners develop a written plan, it represents their thoughts at that time. But it is unlikely that the plan will be implemented as originally developed. As time passes, events occur, and new information and ideas become available, the need to adjust the plan will be obvious, but the reasons for the adjustments will be clearer. For example, changed circumstances may dictate that a different strategy is a better alternative for accomplishing the goals. Even though their thoughts and document may be called a business plan, it should not be viewed as an inflexible recipe for operating the farm.

Some individuals may ask: “what is the purpose of planning if the plan is going to be changed anyway?” The response could be that the purpose of planning and documenting is to clarify the owners’ thinking. An enhanced planning process will reinforce the owners’ understanding of their reasons for the actions they have chosen. Similarly, as a result of planning, the owners are better equipped to recognize that the circumstances are different than they assumed, and that a different strategy is appropriate to reach long-term goals.

Revising does not mean you will make dramatic changes, nor does it mean that what was initially developed was wrong. Likewise, seldom will the entire business plan be revised at one time. Instead, you will probably address those aspects of the business that need attention at this time. Revising the plan is an opportunity to:

- Improve areas you were uncertain about;
- Clarify what you meant the first time;
- Reconsider how some initial ideas now relate to subsequent considerations;
- Reflect on how you have changed; and,
- Thoughtfully consider the implications of changed circumstances.

Owners can prepare to repeat the planning process and revise the plan by establishing a schedule and procedure. The following paragraphs offer some suggestions on when to repeat the planning process and revise the document.

1. Schedule a time when, at least annually, each owner reads the plan in its entirety. This helps to refresh memories about important directions and decisions that need to be made. It reinforces the long-term goals and helps identify areas that need to be emphasized. This review should be accompanied by a discussion of the plan among all business owners. It also is a chance to delete sections that have become obsolete.

   Deciding to revise the plan only when something has gone wrong may be too late. A regular review and discussion of the entire business plan is one method to avoid that problem.

2. Portions of the plan may need to be monitored on a more regular basis. For example, cash flow budgets will likely need to be reviewed periodically (perhaps monthly) whereas goals may need to only be reviewed annually.

3. Revise the plan when new information becomes available. Good planning requires a complete set of adequate records. Individuals who already have developed an
organized record keeping system for their farm are probably prepared to conduct long-term planning. Those who do not currently practice adequate record keeping will need to do so to develop a comprehensive plan. Once the recordkeeping system is in place and the data are collected, the farm owners will be prepared to repeat the planning process and revise their thinking to reflect their additional understanding of their farm business.

4. Identify key variables that are critical to the business and its owners. For example, identify the conditions that would trigger a need to revise all or parts of the plan. A change in circumstances or the occurrence of a specified event may be such variables.

5. Planning is an ongoing process. The thought process that has been suggested can primarily be used to help the decision makers organize their information and recognize how the pieces fit together. Having a way to organize the information should assist the owners in understanding how their ideas relate to one another, and help retain ideas until there is an opportunity to record them.

Finally, in preparing to revise the business plan, the owners may want to consider:
- The format or setting in which the revision will take place;
- What might interfere with or interrupt the revising process; and,
- What could be done minimize those interferences.

For the initial business plan, proceed through the planning process and address each step, but allow variation in the amount of detail among steps. The next time through, you can emphasize aspects of the planning process that need additional attention. After several times through the process (probably over several years), you will have developed a plan containing the necessary detail for each step. This approach minimizes the chance that you will become discouraged because of the amount of detail that can be incorporated into each step and therefore abandon the planning process before all the steps are attempted.

Summary

Long-term business planning is your planning process; you identify your interests, skills, and expectations; you set your goals; you assess your current operation, and develop a plan for implementing alternatives and responding to contingencies; you monitor your progress, and decide what information needs to be documented, shared, or revised.

Business planning is a continuous process requiring commitment to designing, implementing, and revising the plan. The initial business plan might take many hours to complete, depending on the current status of your planning process and skills, but a plan can be completed in stages according to when you have time to concentrate on the project.

Long-term planning is a major commitment, but the rewards can be substantial. Some rewards might be additional cash available for withdrawal from the business, increased communication among owners and family members, and realization of personal and business goals. With planning, you can respond to unexpected circumstances with well-reasoned, pre-planned solutions rather than crisis management.

Business planning is a habit worth developing.

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**Crop Insurance TODAY**

**Dave Snider Retires**

Dave Snider, Electronic Specialist in the Loss Adjustment and Insurance Products division of NCIS retired after 19 years of service to NCIS and the industry.

Dave was responsible for creating and updating the electronic Crop Insurance Handbook and the electronic Loss Adjustment Manual. He also worked on actuarial filings and served as a back-up for CAPP questions.

Dave was looking forward to retirement and plans to spend working in his yard—one of his favorite pastimes—and watching his beloved KU Jayhawks and Kansas City sports teams, the Royals and Chiefs.

Have fun in your retirement, Dave, and thanks for all that you did for NCIS!

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**Start ‘Em Young**

Mike Sieben, Senior Vice President of NCIS, shows his grandson, Cooper, 6, how to do a wheat appraisal.
At John Deere Insurance Company, we help maximize your productivity with our fast, accurate and easy-to-use mapping tool. By creating a visual representation of policy information, you can readily identify your customers’ Common Land Unit (CLU) data for required government reporting, including crop, plant date, acres, practice or type. Our mapping tool enables you to create customizable reports that help facilitate consultative discussions with clients. It’s just one more way we’re providing the resources to make your business more profitable. To learn more, visit [JohnDeereCropInsurance.com](http://JohnDeereCropInsurance.com).

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CR0810991 Litho in U.S.A. (13-07)
## Production
1. Have you recently evaluated your risk in the event of the loss of your crops?
2. Have you investigated other alternative production methods and their consequences?
3. Do you have the necessary knowledge to consider an additional or alternative enterprise?
4. Is your crop insurance protection adequate to cover a severe crop loss?
5. Have you reviewed all of your crop insurance options with your agent?
6. Have you conducted a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis for your operation?
7. Are you in an area capable of supporting irrigation?

## Marketing
1. Do you have a current, written marketing plan?
2. Have you coordinated your marketing plan with your goals and objectives and your financial and production plans?
3. Managing marketing risks:
   a) Are you comfortable with your knowledge of marketing opportunities?
   b) Have you reviewed your marketing options within the past 6 months?
   c) Do you understand how crop insurance revenue guarantees can enhance marketing opportunities?

## Financial
1. Do you have a current business plan?
2. Have you planned for a best-case scenario and developed a plan for how additional income will be used?
3. Have you planned for a worst-case scenario and considered an alternative plan?
4. Do you know your cost of production?
5. Do you know your break-even costs?
6. Do you have the knowledge to create a balance sheet, cash flow, and income statements?
7. Do you have the knowledge to interpret important financial ratios?
8. What is your debt-to-asset ratio?
9. Is the growth of your net worth exceeding inflation?
10. Have you reviewed your ratio trends with your lender?
11. Is your crop insurance protection adequate to:
   a) Repay current operating loans?
   b) Allow you to take advantage of marketing opportunities?
12. Have you reviewed your tax liability within the past three months to determine your tax strategies?
13. Have you investigated all of your potential financing options?
14. Have you investigated all available government programs?
15. Have you considered the trade-offs between maintaining your current investments (certificates of deposit/savings/etc.) and/or reinvesting in expanding your own operation?
16. Do you consult a financial management consultant, lender, accountant, insurance provider, or other professional when making major financial decisions?
17. Are you comfortable with your level of debt?

## Legal
This list does not cover every legal risk exposure faced by nursery growers, and is not meant as legal advice. You should consult an attorney to review your legal risk exposure.
1. Is your will up to date?
2. Do you have a living will?
3. Do you have a farm transfer plan or exit strategy that has been reviewed within the past three years?
4. Have you recently reviewed your insurance policy?
5. Have you recently evaluated your risk exposure to:
   a) Liability covering the public entering your property?
   b) Liability of direct marketing?
   c) Your State department of agriculture's direct marketing regulations?
   d) Environmental and pesticide issues?
   e) Land use issues with neighbors?
6. Do you understand the provisions of all of your contracts, leases, and loans?
7. Have you recently evaluated all the different business entity options for your operation?
8. Do you have a working relationship with your attorney and accountant and have you reviewed your goals and objectives with each?
9. Are you in compliance with such regulations as worker protection, pesticide use records, vehicle registrations, and necessary safety inspections?

## Human
1. Is your personal insurance coverage current:
   a) Do you have adequate medical and disability insurance?
   b) Do you have adequate life insurance to cover your wishes and farm transfer at current values?
2. Have you calculated your risk exposure to employee accidents or dishonesty?
3. Have you provided all employees with comprehensive safety training?
4. Do you have an employee handbook?
5. Are your goals Specific, Measurable, Attainable, Reasonable, and Timed (SMART)?
6. Have you conveyed the goals and objectives of the business to all family members, business team, and employees?
7. Are your goals written?
8. Is everyone in your family (or on your team) employed to the full extent of his or her education, training, and experience?
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Crop Insurance information at your finger tips!
Continued from page 1

With that said, how do we maintain quality service and deliver the program efficiently and effectively? Practice the Fundamentals. Quoting Dick Williams, who managed the Oakland A’s during their back to back World Series titles in 1972 and 1973, “…Fundamentals are the most valuable tools a player can possess. Bunt the ball into the ground. Hit the cutoff man. Take the extra base. Learn the fundamentals.”

The summer for the Crop Insurance Industry is not only about adjusting claims. Summer in our Industry and NCIS is all about the fundamentals. During the course of this summer, NCIS and its member companies will hold more than 100 loss adjustment schools across the country. Attendance at these schools includes all of the 5,000 certified loss adjusters in the Industry. In addition to these school, NCIS held its Fall Update Train the Trainer Conference in Overland Park, Kans., in mid-July. More than 220 company underwriters, trainees, and supervisors were in attendance at this two-day school. Updates included: Crop Insurance Handbook, Nursery Underwriting Guide, Written Agreement Handbook, new producer verification, Rainfall Index Annual Forage, and several others. Both RMA and NCIS staffs presented at the conference. Guest speakers included Sara Wyant of Agri-Pulse who discussed the farm bill and J. Alan Weber of Marc IV who discussed Cover Crops.

Training on the policies and procedures is key to serving our customers. It is fundamental to our core business. We saw the results of this training effort pay enormous dividends in both 2011 and 2012. USDA’s Under Secretary, Michael Scuse, traveled the country during the 2012 drought and personally handed Michael Scuse, traveled the country during their back to back World Series titles in 1972 and 1973. “...Fundamentals are the most valuable tools a player can possess. Bunt the ball into the ground. Hit the cutoff man. Take the extra base. Learn the fundamentals.”

The Crop Insurance Industry Delivery System and the Field of Dreams

“If you build it they will come.”—Field of Dreams

Several issues ago, I did a piece entitled “Isn’t there an APP for that?” (February 2012). In that article we talked about the structure of the U.S. crop insurance delivery system. Currently there are eighteen, yes count them, eighteen Approved Insurance Providers (AIPs) located nationwide to serve the risk management needs of this country’s farmers and ranchers. That network of providers includes approximately 15,000 licensed crop insurance agents and roughly 5,000 accredited crop insurance adjusters. This is an unparalleled infrastructure. The private sector delivery system in 2012 managed approximately $117 billion in agricultural liability covering over 280 million acres of cropland and pasture. With this infrastructure in place, what was the resounding message heard from the farm groups and commodity organizations during the Farm Bill debates? “Do No Harm” to crop insurance.

Success of the Crop Insurance Program—The Babe

“Never let the fear of striking out get in your way.”—Babe Ruth

In recent interviews, and conversations I am often asked about the “target” on crop insurance, either in terms of negative media coverage or USDA budget exposure. I do not think of this as a pitch to “foul-off.” Rather, this is an opportunity to recognize and acknowledge the success of the Industry. The Industry is not a self-imposed target; rather, our “stature” has now been elevated given the Industry’s role in farm policy these days. This is the result of the success of doing our job, executing at critical moments in time when our customers expected us and needed us to do so.

Finally, Attitude

“There’s no crying in baseball!”—Jimmy Dugan, A League of Their Own

Ok, so no crying in crop insurance either. Some of us have been in this business for quite some time. As one Industry veteran put it many years ago, “Crop Insurance is the business you cannot get in, but once you are in, you cannot get out.” This is no time to cry about past SRAs or past reductions in program funding. We should be optimistic about the future of our Industry. We should seize our opportunity to better serve the agricultural community. Agriculture has a tremendous responsibility in the years to come. Global population is projected to be more than nine billion by 2050. These people will need to eat, and they will need to rely on a financially stable agriculture.
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is part of that. We simply need to go up to the plate and swing freely. The Industry has the talent, the capability, the momentum and the “fan” support to accomplish a great deal. Look how much has been accomplished.

Last quote

“In order to excel, you must be completely dedicated to your chosen sport. You must also be prepared to work hard and be willing to accept constructive criticism. Without one-hundred percent dedication, you won’t be able to do this.”— Willie Mays

Hopefully any remaining readers are rounding third base, or those fans still in the stands are getting a “dog” or some peanuts. As we take to the field with this issue of TODAY®, the voice of Harry Caray can still be heard, “...let’s get some runs...”

Keeping with the baseball theme, we believe this issue has a great starting lineup. Our lead-off article (hitter) is an introduction to PRISM, a weather and climate mapping system developed by Dr. Christopher Daly from Oregon State University. Batting second is a personal profile piece on Bill Bridgeforth, a farmer from Tanner, Alabama, who wouldn’t think of leaving crop insurance out of his risk management plan. Batting third is a look at the 2012 research results. NCIS, with Industry support, spends several hundred thousand dollars each year studying the effects of damage on growing crops. This is important information to have when developing loss adjustment procedures to ensure policyholders are paid accurately. Finally, batting cleanup is the final piece in the series of risk management articles by Dr. Laurence Crane about documenting, sharing and revising risk management plans. We hope you enjoy this issue and have a great summer of baseball and crop insurance!
We’ll let you know when we invent the on-line plow but for now, this might be the next best thing for America’s farmers: a digital claims file management system that enables our insurance adjusters to respond more quickly and efficiently to losses. That’s the Strength of Specialization!
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