

**No-Till Notes:**  
**Drought – Part 1**

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Panhandle No-Till Educator

I'm writing this on May 3, 2008; a day after the storm and blizzard that was supposed to bring us a large dose of much needed spring moisture. Some areas of the Panhandle did receive a significant amount of precipitation, upwards of an inch. Here in Alliance we received .16 of an inch. Not exactly what we were hoping for. I thought now might be a good time to look at the moisture we do have available heading into the growing season and maybe forecast ahead to what type of crop yields we may expect to raise given "normal" precipitation during the growing season. Moisture is the limiting factor in crop production in the Panhandle, so I am trying to collect data off my farm to better manage the moisture we do receive.

Alliance averages 15.12 inches of precipitation. I found this information in the soil survey manual from the local NRCS office. Our average monthly totals are as follows:

Average Monthly Precipitation 1951-1977 (Inches)

Jan.- .32	Feb.- .25
Mar.- .69	April- 1.58
May- 2.87	June- 2.88
July- 2.13	Aug.- 1.74
Sept.- 1.4	Oct.- .69
Nov.- .32	Dec.- .25

YEARLY TOTAL- 15.12

I have been tracking the moisture we have received at our farm over the past few years to see how crops have responded during the drought to get an idea of what to expect given annual rainfall amounts. I begin my annual rainfall in July for the following growing season. The reason for this is winter wheat stops using moisture during early July, so I actually begin storing water for the following crop at this point when we continuous crop no till. A dry land corn crop will use the moisture from the July starting point until the following Sept. when it has matured. During this time from July of 2006 until September of 2007 we received a total of 10.44 inches of precipitation. Our average rainfall during this 15 month time period would be 20.61 inches. We received about 50% of our normal

precipitation. During the calendar year of 2007 we received 9.34 inches of precipitation, or 62% of our normal 15.12 inches.

Our yields were 35 bushels/acre for winter wheat, which received 9.8 inches during the period from July 06 to July 07, proso millet yielded 49 bushels/acre with 10.4 inches of moisture from July 06 to Sept. 07, and corn yields were 47 bushels/acre with the same moisture as the millet.

From this rough data I collected, the wheat made 3.57 bushels per inch of moisture, the millet yielded 4.7 bushels/inch, and the corn 4.5 bushels/inch. In the next article I will look at this year's moisture received through April and try to forecast into the coming year.

I would encourage everyone to take advantage of some no till farming educational opportunities that are coming in the near future. No Till On The Plains will be hosting a 3 day bus tour to South Dakota on June 17-19, 2008. This will be an excellent opportunity to tour large scale no till farming operations which also include livestock production, with similar growing conditions to our area. We will also visit Dakota Lakes Research Farm. Dwayne Beck has been doing no till research on this farm for about 19 years and has a wealth of knowledge on all aspects of no till farming. Cost of the tour is \$69.95/person which includes travel and lodging. To sign up for the tour contact No Till On The Plains at <http://www.notill.org/> or 1-888-330-5142.

The Upper Niobrara White Natural Resource District will also be hosting field days on June 24th at the Watson Brother's Farm north of Alliance and June 25th at Curt Roth's Farm near Clinton. Both of these farms have been in long term no till crop production. This will be a good opportunity to visit with local no till producers about their experience with no till production practices.

## **Drought – Part 2**

In the last article I looked at the moisture for the 2007 crop and how the crop yielded given the moisture we received. So how are we in relation to moisture headed into the 2008 growing season? We're dry! One fairly persistent pattern in agriculture in Western Nebraska is we are almost always dry and looking forward to the next rain! Our average rainfall for January through April is 2.84 inches and we have received so far 1.72 inches or 60% of normal.

When looking at potential crop yields for 2008, we need to start with our subsoil moisture. As I have stated in previous articles, most of our soils will store 4-6 inches of moisture in a 4 foot soil profile. In our wheat stubble where we will plant dry land corn or proso millet this year we have the most moisture stored because this is also our longest

fallow period. Since July of 07 we have received 5.96 inches of precipitation on these fields. The fields following the proso millet and corn have received 3.21 inches since September of 07 when those crops matured. Our subsoil moisture is not up to soil capacity since we are below our normal precipitation totals. It is always best to start out a growing season with a full subsoil moisture profile.

So what's the outlook for 2008 crop production? The state climatologists are predicting the drought will intensify in western Nebraska. Mother Nature has a way of changing her mind and this may turn out to be a good moisture year, we'll have to wait and see but it doesn't sound very promising.

If we look at average rainfall for the growing season of May through September, we should receive 11.02 inches of rain. This would give our corn crop which will be planted in the wheat stubble 16.98 inches total, and should equate to a yield of 76.42 bushels/acre using the 4.5 bushels/inch of moisture I calculated from last year's yields.

Our proso millet crop would receive the same amount of moisture, but the yield potential of millet may be 55-60 bushels/acre. I doubt the millet crop would take advantage of the additional moisture.

The winter wheat crop planted behind winter wheat would receive the 5.96 inches already in the subsoil, plus an additional 5.75 inches during May and June, for a total of 11.71 inches during the growing season for wheat. This should equate to a yield of 41.8 bushels/acre using the 3.57 bushels/inch I calculated from last year's yields. The wheat planted into the proso millet stubble from last year would receive 8.96 inches of moisture, and should have a potential yield of 31.9 bushels/acre.

There are other variables to consider when determining crop yields. Stand establishment, timing of the rain, disease, weed and insect infestations also play a role in determining yield. Because of the dry fall last year wheat stand establishment on our farm was poor, so I doubt we will reach full potential yields even if the rain does come. The other weather consideration in western Nebraska is when it does rain; it can have some hail with it.

The outlook for 2008 has some positive signs that this could be a good year for dry land crop production provided we can receive "normal" rainfall. Like I stated previously, rain and the timeliness of the rain is the most important component to crop production in our area.

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Please contact me about any of these no till educational opportunities. My phone number is 308-760-5259 or my e-mail address is [garbanzobeanfarmer\\_mark@hotmail.com](mailto:garbanzobeanfarmer_mark@hotmail.com).