
FOCUS on South Plains Agriculture

Texas AgriLife Research and Extension Center at Lubbock
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Wheat Fertilization

Wheat Grain Production and Nitrogen Topdressing - N Should Be Applied Now

During the recent winter Extension crop production meetings I have found significant misunderstanding among wheat growers in the region, more so southwest of Lubbock, as they don't realize the critical timing of top dress nitrogen on wheat. Many producers are not putting top dress N out soon enough if they are going to grain, and thus they are losing yield potential. For example, at the recent Gaines County crop meeting on Feb. 5th, several farmers and industry personnel noted that many farmers don't fertilize with N until mid-March to even April 1. This is much too late for N topdressing applications to achieve the full desired yield response.

Historically we have long said that all top-dress N needs to be applied by jointing, a readily identifiable stage of growth that is almost immediately followed by hollow stems. Nitrogen applications after this point in the worst case might only increase grain protein content, and at best help achieve the too-low yield potential of the crop, especially if the wheat crop passes this critical growth stage with minimal N fertility.

Also, jointing is the stage of growth at which cattle grazing should cease if going to grain yield. Texas A&M research at Bushland near Amarillo suggests that grain production is reduced by 0.8 bushels per day for each day after jointing that cattle remain on the field.

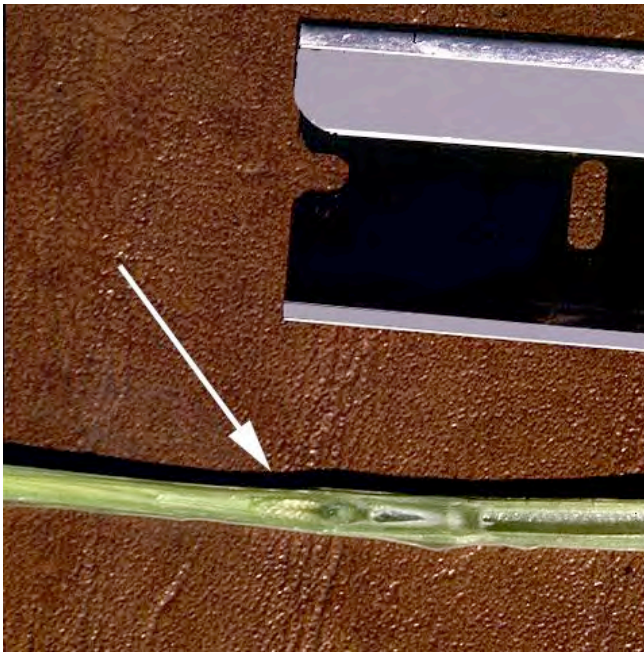


Figure 1. Growing point differentiation in wheat leads to a small head down in stem—spikelet number and seeds per spikelet pretty much already determined. If grazing and then going to grain then cattle should have been off about 7-10 days prior.

By the time jointing occurs, up to 10 days or so beforehand, the growing point differentiates from producing leaves to now determining the maximum number of potential spikelets and seeds per spikelet in the head. Once jointing occurs this process is essentially complete, and the first significant component of grain yield potential has been set. As noted above, additional N fertilizer after this point may help yield some, especially if the field was strongly N deficient, but our first and largest yield component--potential number of seed--has passed.

Many producers are missing this jointing stage of growth with their N, and in fact I encourage growers to apply N even earlier, say by mid-February, to ensure that the initial topdress N is on the field and available to the plants as the growing point differentiates. Jointing tends to average about March 1 (plus or minus 7 days) in the South Plains, later as you move into the Panhandle. There isn't all that much difference among varieties.

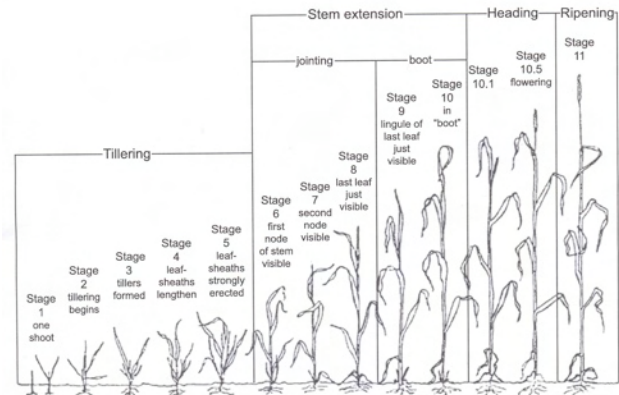


Figure 2. The Feekes scale of growth stages for wheat. Jointing occurs between stages 5 and 6. By the time boot stage (10) occurs most of the N required by the plant has already been taken up. [Click here for a larger graphic.](#)

For further information on the growth stages of wheat and how they relate to potential yield, consult Texas AgriLife Extension Service "[Growth Stages of Wheat: Identification and Understanding Improve Crop Management](#)". The growth stages at Feekes 5.0 and 6.0 are particularly relevant to understanding the N needs and timing on wheat.

The following six questions summarize nitrogen issues for wheat grain production.

- 1) What is the N requirement for wheat grain production?

About 1.25 lbs. of N per bushel is removed from the field. In contrast, the same bushel of wheat grain removes about 0.45-0.50 lbs. of P per bushel.

- 2) I have heard there are a couple of rules of thumb for gauging the amount of N to apply for wheat grain. What are they?

Through the years we have used two versions of the same rule of thumb for fertilizing nitro-

gen (N) in wheat for grain depending on if you have soil test information available:

Rule 1A) No soil test: 1.2 lbs. N per bushel of yield goal

Rule 1B) With soil test: 1.5 lbs. N per bushel of yield goal, then adjust fertilizer N for the soil test

Rule 2) If grazing then going to grain, fertilize up to 2 lbs. of N per bushel of yield goal at planting, then when the cattle come off (by jointing), fertilize again with another 0.75 lbs. N per bushel of yield goal. Yes, cattle need to be off by jointing to ensure that grazing doesn't remove heads and reduce grain potential, but earnestly that is probably not soon enough for the additional round of N. Why? Because the growing point has already differentiated and the potential seed number is probably already pretty well determined.

3) When is the best time to top-dress N for grain yield?

The most important stage is to have essentially all nitrogen on the field by the time the growing point differentiates during Feekes growth stage 5. Kansas wheat research suggests that substantial declines in yield potential may occur if all or even a portion of topdress N is delayed after this stage.

4) If I make a ground application of N fertilizer vs. applying through a pivot, should I change my application timing?

For dryland fields even earlier applications of topdress N may be required because one must wait for a rain or snow to incorporate the fertilizer into the root zone. If broadcast N is applied with a fertilizer spreader when irrigation

is available, it is best to go ahead and water the field to wash nitrogen into the root zone.

If applying N through the pivot the key is to ensure that an ample amount of your fertilizer N is applied as the growing point is differentiating. (Good moisture conditions are important at this time as well to increase yield potential.) Small amounts of N applied later may align the N use closer to actual plant uptake, but this may not necessarily increase the yield potential by saving some of the N for jointing or later.

5) Is there any benefit for N applied after jointing? What if I am late applying my N, should I still do it?

Late N in some cases may only affect grain protein content, but if a field has a general N deficiency then N applied at or after jointing is still needed to achieve as much of the yield potential as possible that was set by the growing point differentiation into the numbers of seeds per head at that time. So you can "catch up" to the pre-existing yield potential that was set, but you cannot increase it.

6) Should N applications for wheat grain production be split between fall and winter?

In general, as a rule of thumb in grazing only situations, if residual fertility is good then producers may choose to delay initial N fertilization until the winter. If soil fertility is not high, then I suggest applying 1/4 to 1/3 of the N in the fall. For those producers not applying fall N due to good residual fertility, then it becomes more important to move winter/early spring applications forward with initial N probably applied in January.

Irrigation and Wheat

A lot of wheat in the South Plains that growers intend to take to grain has not been irrigated much. We all know it is dry! A few farmers have not irrigated since drilling in November. This wheat needs water immediately to jumpstart growth. If it is stressed like this, that growing point might differentiate even earlier. Get the water on first as quickly as possible even if you can't inject N, but then come back as quickly as possible with topdress N in a subsequent irrigation.

Spring-Planted Oats for Hay

In years like 2008 there is increased interest in planting oats in February for additional hay due to shortages in the wheat crop. Oats are not as tough as wheat is for grazing tolerance. It is too late to plant wheat for any significant forage production without taking the risk that wheat that does not experience sufficient chilling (vernalization) will not enter the reproductive phase and produce large amounts of forage.

Typically I have recommended seeding oats as soon as the first week of February in the Lamesa area and by the middle of February for around Lubbock. Soil temperatures for oats are adequate at this point, and delaying planting shouldn't offer any additional advantages.

Oat forage production from past Texas AgriLife research in West Texas indicates better forage production from longer-season oats even if the oats are harvested at the same time.

For tips on oat production for hay consult the [2006 guidelines available on the web](#).

Recent Summer Crop Contract Prices

Grain sorghum continues to be priced per bushel at \$0.40-0.50/bushel less than Dec08 corn, e.g. for corn on 15 Feb 08 @ \$5.36/bu and \$0.40/bu under, then the approximate grain sorghum contract price for 2008 is near \$8.80/cwt.

Oilseed sunflowers have been priced at extraordinary levels. The oilseed sunflower price in West Texas is determined in great part off of ADM's Northern Sun price in Western Kansas, which was \$26.75/cwt. on 14 Feb 08 (this price does not include the likely premium for oil content above 40%). In the Texas High Plains, High Plains Oilseeds Ltd. {806-966-3000}, which has a crushing plant north of Dumas, is offering in the range of \$25/cwt for high oleic sunflower. Their delivery point in Brownfield was at \$23.50/cwt. through February 5 before the recent price run up. (This price does not reflect potential oil premium giving 2% premium for each 1% of oil content above 40%; or discount if below 40%--2007 oilseed sunflower delivered to Brownfield averaged 45% oil content.) High Plains Oilseed will also contract mid oleic (NuSun) oilseeds as well. The birdfood oilseed market with Red River in Lubbock in early February was priced at \$22/cwt. with several South Plains delivery options.

Confectionary sunflowers with Red River Commodities, Lubbock, (806-763-9747) through early February were priced at \$30/22 per cwt. depending on the seed size. Several South Plains delivery options are available.

Soybeans have been pricing about \$1/bu below the Nov08 futures. Soybeans may be of interest due to reduced need for N fertilizer, but soybean seed is very limited and soybean production in the South Plains has never been that successful south of about U.S. Highway 70. The rap on soybeans has been inadequate yield response for the amount of irrigation water applied.

Guar contracted through West Texas Guar in Brownfield (806-637-4662) with delivery options to either Brownfield or Vernon appear to be about \$18/cwt.

Sesame contracts are also available in the region usually with delivery on the turnrow. Prices are currently \$32/cwt. with several price

premiums available for good quality seed. Further info., Jerry Riney, Sesaco, (806-778-2193).

Will There Be Enough Grain Sorghum Seed in 2008?

Regional sales representatives indicate they should have enough seed to take care of their customers this year. Seed of some popular hybrids, however, are scarce and even sold out. Producers projecting significant acres of grain sorghum need to make arrangements on seed as soon as possible. Company representatives, however, note that popular forage sorghum and sorghum/sudan hybrids are already sold out in many cases.

Increased interest in grain sorghum is not just being driven by current prices. Levelland/Hockley County Ethanol has announced that they will pursue grain sorghum for 100% of their grain. For this 40-million gallon plant they will need about 45 semi loads of grain sorghum per day. If this grain were to come from the region then using about 3,500 lbs./acre, a split between irrigated and dryland production, the sorghum requirement would be 250,000 planted acres with a harvest on all irrigated acres and 80% of dryland acres. Likewise, White Energy, Plainview, is looking to blend 10% grain sorghum in their corn which would require about 72,000 acres of grain sorghum production yielding 5,000 lbs./acre.

New Texas AgriLife Extension Service Budget Webpage for South Plains

Extension economists Jackie Smith, Jay Yates and Jeff Pate are compiling current enterprise crop production budgets for the Texas South Plains. With current commodity prices, high increases in fertilizer costs, etc., these budgets more than ever can help guide producers in realistically assessing and comparing production costs for about eight crops in the Texas South Plains. Producers will need to insert their budget information to adjust budgets to their yield goal vs. the sample yield in the budget, crop price, equipment, and

chemicals use. If you have questions about how to best use these budgets for your management decisions contact the Extension economist staff at Lubbock at (806) 746-6101. [The webpage](#) is expected to be active by February 20th.

Upcoming Texas AgriLife Extension Service Meetings

Annual Texas A&M/Texas AgriLife Peanut Workshops, Feb. 19-20

Farmers can update their peanut knowledge at this week's 5th annual Texas AgriLife Research & Extension peanut production workshops scheduled in Plains and Littlefield. Both programs will provide variety trial results, weed and disease control tips, and other peanut information. Lunch is provided, and the programs will conclude by 2:00 PM.

Tuesday, Feb. 19th, Plains. Registration begins at 8:30 AM at the Plains Community Building, one block south of U.S. 82/380 on Avenue G.

Wednesday, Feb. 20th, Littlefield. Registration begins at 8:30 AM at the Lamb Co. Ag. & Community Center, 1619 Hall in Littlefield (on U.S. 385 about four blocks north of U.S. 84).

CEUs will be available. For more information call Yoakum Co. Extension, (806) 456-2263; Lamb Co. Extension, (806) 385-4222, ext. 235; or Calvin Trostle, Texas AgriLife Extension Service agronomist at (806) 746-6101, ctrostle@ag.tamu.edu

Grain Sorghum Production Mini-Workshops, Feb. 21-March 7

Irrigated and dryland sorghum production will be discussed for seeding rate and planting date, hybrid selection, insects, herbicide options, sharing limited irrigation with other crops, etc.

Workshops will be staffed by AgriLife Extension agronomist Dr. Calvin Trostle, Lubbock, and local integrated pest management extension agents.

FEBRUARY

21st, Levelland, Brasch-Mitchell Building, 513 Avenue G, 9:00-11:45 AM, (806) 894-3159.

25th, Lamesa, Grain Sorghum & Crop Diversification Seminar, Dawson Co. Community Center, South Houston & 8th Street, 8:30 AM—12:00 PM. Program also includes updates for guar, sesame, and sunflower. (806) 872-3444.

26th, Littlefield, Lamb County Extension Office, Courthouse (100 6th Drive, Room B17 in basement), 9:00-11:30 AM, (806) 385-4222, Ext. 235.

28th, Plains, Yoakum Co. Extension Office, 901 Avenue G, 9:00-11:30 AM, (806) 456-2263.

29th, Lubbock, Texas A&M AgriLife Research & Extension Center, 1102 East FM 1294, 9:00-11:30 AM, (806) 746-6101.

MARCH

6th, Morton, Cochran Co. Extension Office complex, 200 West Taylor, 9:00-11:30 AM, (806) 266-5215.

7th, Muleshoe, Bailey Co. Coliseum, 9:00 AM-12:00 PM (also includes short updates on other crops), (806) 272-4584.

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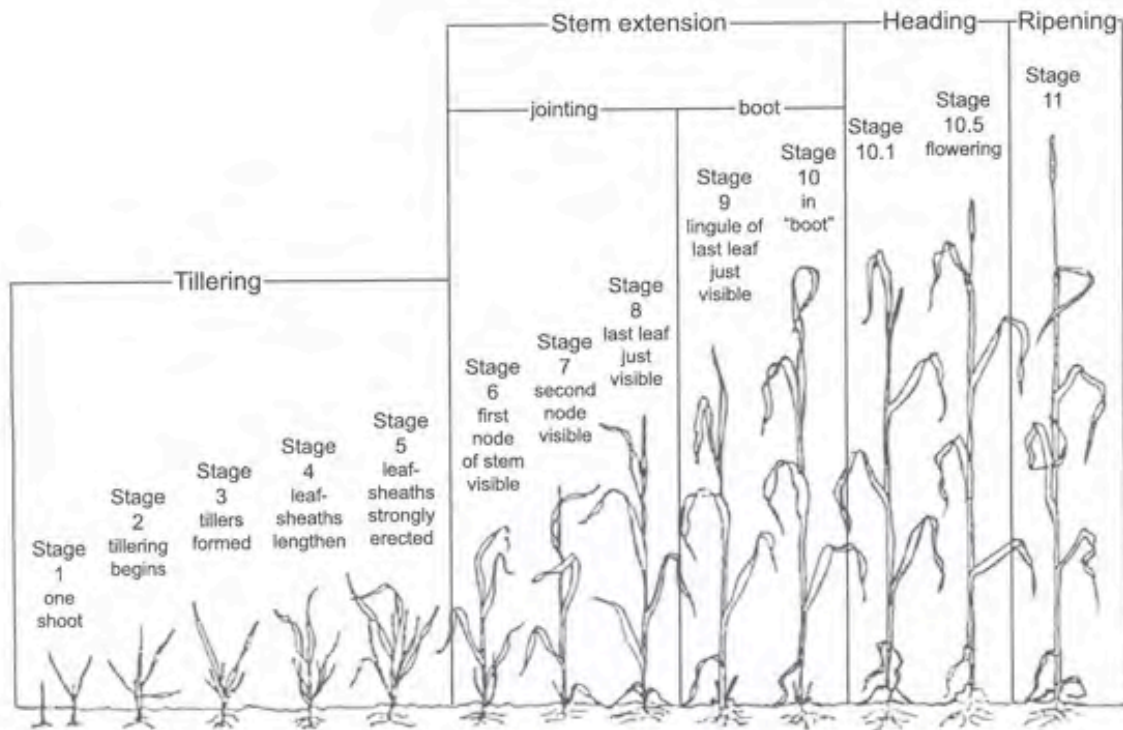


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Feek's Scale

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