

NC Cooperative Extension - Hertford County Center

Wheat Planting Considerations

October 6, 2022



Keys to a Successful 2023 Wheat Crop

Below are the average fertilizer prices according to the USDA-NC Dept of Ag Market News. These prices are subject to change, but currently all fertilizer prices have increased from prices last year at this time.

	Average 10/3/22		Difference from last year	
	\$/ton	\$/ lb basis	\$/ton	\$/ lb basis
DAP	1048	1.14	+348	0.38
MAP	910	1.34	+124	0.19
Potash	885	0.74	+185	0.16
Urea	835	0.91	+85	0.09
AMS	610	1.27/s - 1.45/n	+160	0.33/s - 0.38/n
UAN 32	695	1.09	+259	0.41

Crop Budget

Below is an estimated crop budget based on current fertilizer prices. The cost below reflects 140 units of nitrogen, 50 units of P, 75 units of K, and 24 units of sulfur. You may find that some of these figures may need to be adjusted or that there may be additional costs that are not reflected in this budget. Dr. Nick Piggott with the Ag and Resource Economics Department, has also developed a great resource that calculates potential returns based on crop prices after entering all inputs into a spreadsheet. To access this tool, click the link here: [New Crop Comparison Tool](#).

Also find an [NCSU Wheat, Conventional-2022 Enterprise Budget](#) to compare.

2022 Estimated Wheat Input Cost Per Acre			
	Amount/Product	lbs/nutrient per acre	Cost/acre
Seed	150 lbs/ac		50
DAP (18-46-0)	109 lbs/ac	50 lbs p2o5	57
Potash (0-0-60)	125 lbs/ac	75 lbs k2o	55.5
AMS (21-0-0-24)	100 lbs/ac	21 lbs N, 24 lbs S	30.48
UAN32%	28 gal/ac	100 lbs N	109
Herbicides			
Burndown	Glyphosate		18
Pre-Emerge	AnthemFlex		15
Topdress	Harmony		12
Fungicide			15
Insecticide			5
Land Rent			80
Tractor/Machinery			30
Hauling			20
Crop Insurance			10
Total Cost			\$ 506.98

Wheat Return Based on Price & Yield @ \$506.98/ac Cost		
Price	Yield (bu/ac)	Net Return\$/acre
6.00	60	-146.98
	70	-86.98
	80	-26.98
	90	33.02
7.00	60	-86.98
	70	-16.98
	80	53.02
	90	123.02
8.00	60	-26.98
	70	53.02
	80	133.02
	90	213.02

Seed Treatments

- Insecticide/Fungicide seed treatments are an added cost but increased germination and protection from early season stress can help offset cost.
- Fungicide seed treatments can help when we have cool/wet early conditions.
- Insecticide seed treatments can help with early planted wheat against hessian fly and can protect against fall aphids that can lead to barley yellow dwarf showing up in mid to late spring.

Fall Fertility

- Best time to correct pH, P, and K indexes will be pre-plant.
- Pre-plant N in the 20-40 lb/acre range will be key along with supplying P and K to develop and feed early tillers.
- If following a high yielding corn crop, applying towards the 40 lb N/ac will be necessary due to excess residue that can tie up N.
- Also staying towards a 10:1 or 8:1 Nitrogen to Sulfur ratio season long will be important.

Weed Control

- Starting clean in the Fall is always important. If Italian ryegrass or annual bluegrass has been a problem in the past, there a couple different options.
- If utilizing no-till, Valor can be applied to provide residual broadleaf and grass control but must be applied at least 7 days ahead of planting.
- Anthem Flex is another herbicide that can be applied behind the planter if drilling your wheat that is great at suppressing grass and broadleaf weeds. 0.5 inch of

rainfall is needed to activate the herbicide and it is not recommended to apply if 0.25 inches or more of rainfall is expected within 48 hours of planting. Wheat must be planted at least 1 inch deep but not over 1.5 inches.

- Lastly if you were unable to utilize a preemergent, again Anthem Flex or Zidua can be applied to suppress grass and broadleaf weeds that have not emerged when 80% or germinated wheat seeds have a shoot at least ½ inch long until wheat spiking.

Tillage

- Planting behind cotton or full season soybeans, tillage is likely not needed.
- Planting into < 100 bushel/acre corn crop, tillage is likely not needed and no seeding rate increase is needed if planting on time.
- Planting into > 150 bushel/acre corn crop, mowing stalks would likely be needed due to additional residue.
- Planting into > 200 bushel/acre corn crop, mowing stalks and tillage likely necessary due to additional residue. Also increasing seeding rate by around 10% and planting earlier could help with achieving an adequate seeding rate. Another thing to keep in mind with planting behind corn would be selecting a variety that has resistance to head scab.

Seeding Rate & Drill Calibration

- Below are charts from the [2021 North Carolina Small Grains Production Guide](#) to help with seeding rate decisions and drill calibration. It is important to look at your varieties seed per pound carefully. Varieties vary in seed size from year to year and it is easy to make a mistake and under-seed a field if not done properly. If planting on time, 1.3-1.8 million seed is the recommended seeding rate.

Pounds per acre = Target Population / Seeds per pound

Bushels per acre can be calculated from here using this formula:

Bushels per acre = Pounds per acre / 60

Target Population (M)		1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
Seeds/ft ²		23	25	28	30	32	34	37	39	41	44	46
Seeds/lb	10,000	115	127	138	150	161	173	184	196	207	219	230
	11,000	105	115	125	136	146	157	167	178	188	199	209
	12,000	96	105	115	125	134	144	153	163	173	182	192
	13,000	88	97	106	115	124	133	142	150	159	168	177
	14,000	82	90	99	107	115	123	131	140	148	156	164
	15,000	77	84	92	100	107	115	123	130	138	146	153

Table 4.2. Pounds per acre values calculated using target population (Seeds/acre or Seeds/ft²) and the seed size (Seeds/lb). The recommended seeding rate range for wheat is highlighted in green. The seeding rates shown above assume 85% germination.

Certified seed in North Carolina requires a minimum 85% germination. Table 4.2 assumes 85% germination rate in calculating a final pounds per acre seeding rate. If your seed has a germination rate lower than 85%,

Seed germination	Increase seeding rates in Table 4.2
80%	5%
75%	10%
70%	15%
65%	20%



Yield Optimizing Tip:
Use certified seed with
≥85% germination rates.
Do not use seed with less
than 65% germination

Table 4.3. Increase in seeding rates required for lower germination seed.

Target Population (M)		1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
Seeds/ft ²		23.0	25.0	27.5	30.0	32.0	34.0	37.0	39.0	41.0	44.0	46.0
Row Spacing	6.0	11	12	14	15	16	17	18	19	20	22	23
	6.5	12	13	15	16	17	18	20	21	22	23	25
	7.0	14	15	17	18	19	20	22	23	25	26	28
	7.5	15	16	17	19	20	22	23	25	26	28	29

Table 4.4. Number of seeds per row foot calculated using target planting population (Seeds/acre or Seeds/ft²) and row spacing. The recommended seeding rate range for wheat is highlighted in green.

Weather Report

According to NOAA forecast predictions for this fall, the temperature outlook is leaning towards above average for October-December. This should help with getting fall tillers established. For precipitation, we are in the equal chances of average for rainfall.

It is key to be certain of the maturity of the varieties that you are planting. Start with your late maturities and finish with the early lines to ensure that your crop will be safe if we receive a late spring freeze.

Below is Dr. Ron Heiniger's Fall Weather Report from last year. Last fall was a La Nina weather pattern with mild temperatures giving way to a cool, wet winter. Planting early was key to achieving stand establishment. Dr. Heiniger also provided some tips for top yielding wheat in a video from last year. You can find a link to the full video on the Small Grains Extension YouTube Channel: [Heiniger Weather Report 2021-22](#).

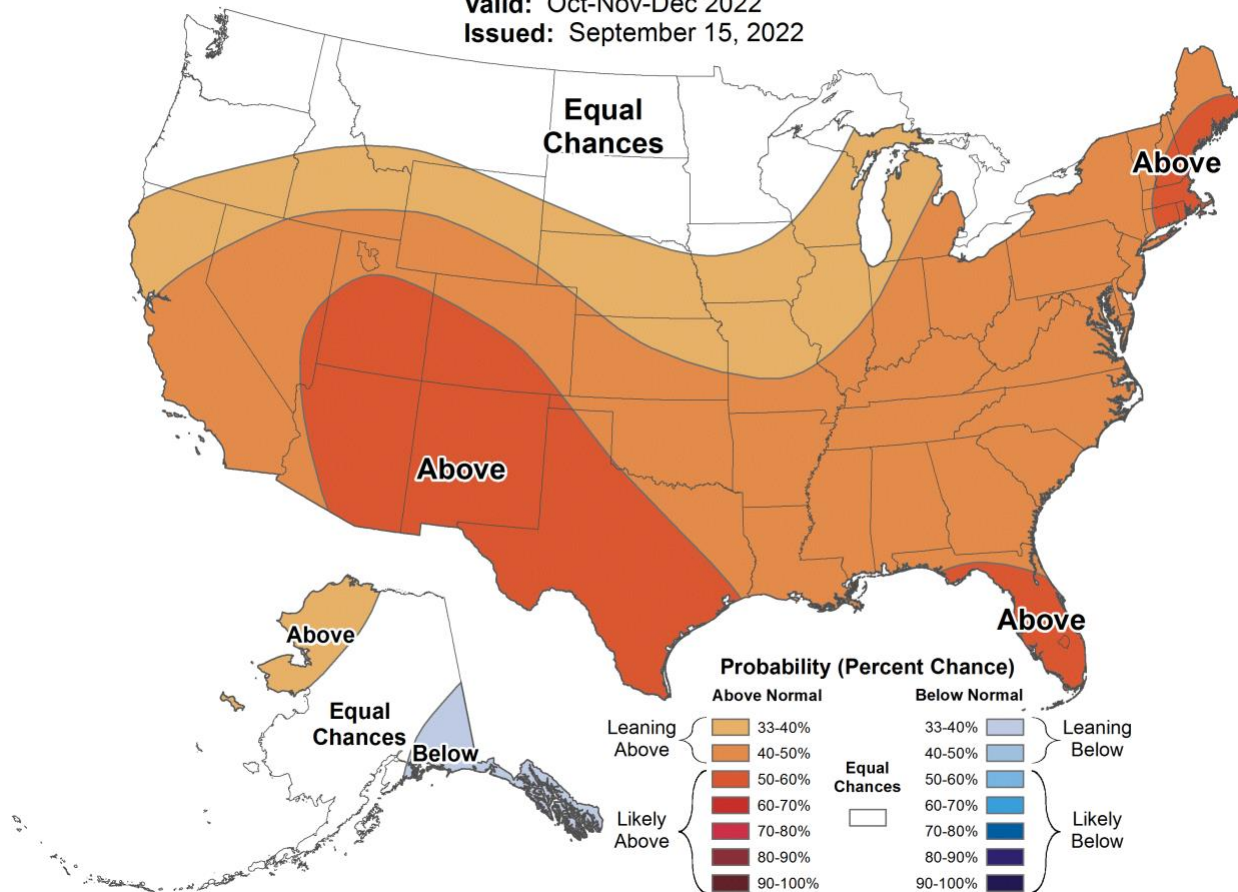
Oct-Nov-Dec 2022 NOAA Forecast



Seasonal Temperature Outlook



Valid: Oct-Nov-Dec 2022
Issued: September 15, 2022

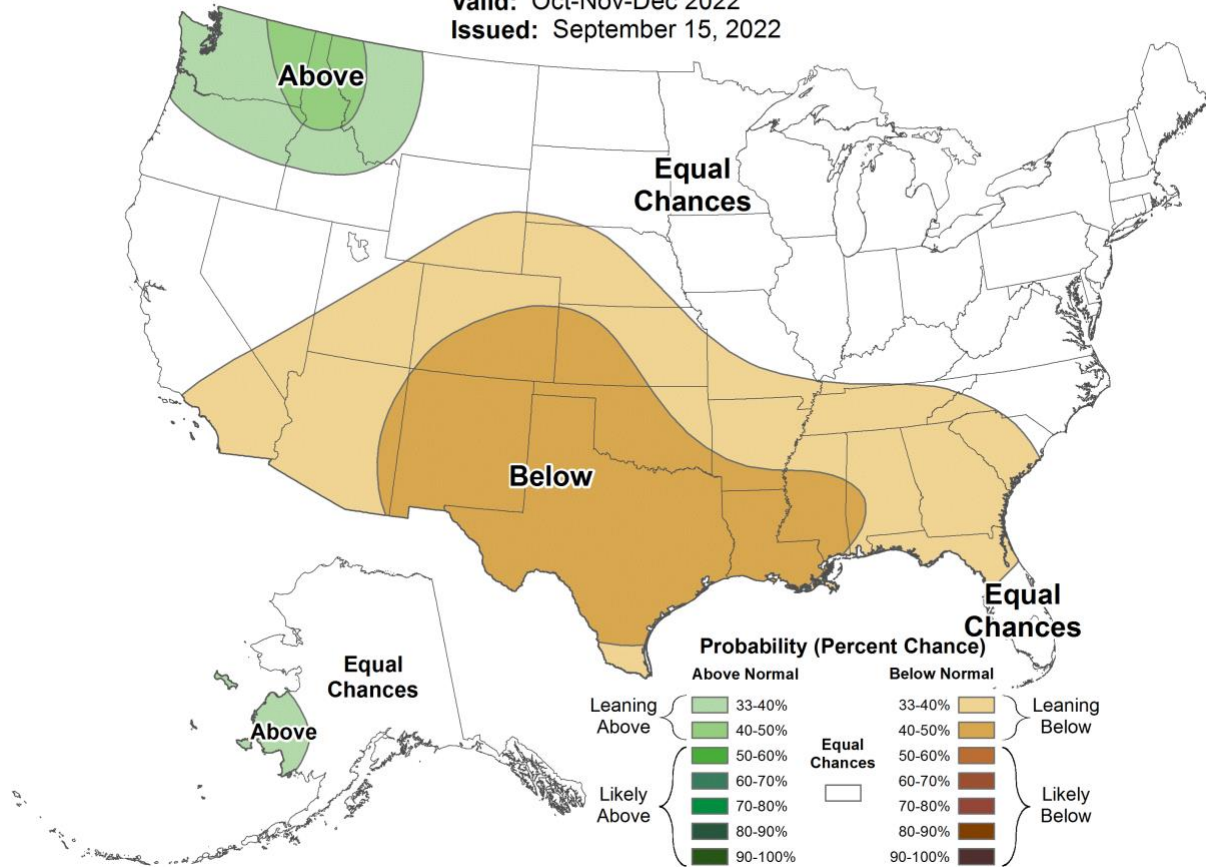




Seasonal Precipitation Outlook



Valid: Oct-Nov-Dec 2022
Issued: September 15, 2022





What to Expect: Fall 2021 – Winter 2022

- La Nina returns for a second year. 66 to 70% chance of a La Nina event this winter into next summer.
- HOWEVER - Bermuda High has a great deal of strength and should remain strong which means we are less likely to see dramatic weather changes as the southeastern US remains on the high/low pressure ridge boundary.
- Mild even hot weather into late October with drier periods in late August through September changing to COLD and rainy in early November. Do not expect the usual December break that we normally get.
- Cold, wet weather to continue into mid February.
- Above average temperatures starting in early March and continuing into April with dry conditions.

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Planting Dates For Fall 2021

Wheat Maturity (Growing Degree Days to Flowering)	NAO Prediction COOL	NAO Prediction NEUTRAL or WARM
Early (< 1790)	20 Oct. to 1 Dec.	10 Nov to 15 Dec
Medium (1790 to 1849)	1 Oct. to 17 Nov.	20 Oct to 15 Dec.
Late (> 1850)	1 Oct. to 10 Nov.	1 Oct. to 1 Dec.

Seeding Rates For Fall 2021

Planting Period	NAO Prediction COOL	NAO Prediction NEUTRAL or WARM
Seeds per Row Foot		
1 Oct. to 20 Oct.	15 to 20.	10 to 15
20 Oct. to 12 Nov.	22 to 28	18 to 22
12 Nov. to 15 Dec.	28 to 34.	22 to 28

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Given the Weather Forecast What Should Wheat Growers Concentrate on?

- Planting dates will be important! Look to plant wheat by November 5th. Very few, if any, planting opportunities in November. Possible to find a late opportunity in December but that means less tiller development.
- Plant using the upper end of the recommended seeding rate. 22-25 seeds per row ft.
- Apply some N at or near Planting to promote fall growth even during rainy periods.



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For wheat variety information, follow the link below to the NC State Variety Section Tool or contact Dylan Lilley.

[Official Variety Selection Tool](#)

Also for additional questions, contact Dylan Lilley, Field Crops Extension Agent at 252-358-7822 or by email at dylan_lilley@ncsu.edu.

[Read more NC Cooperative Extension Wheat Information >>](#)

[Read more NC Cooperative Extension News >>](#)

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