

Spring Wheat Facts (NASS-ID)

- Harvested Area
 - 2020 – 495,000 acres
- Average Yield
 - 2020 – 91 bu/A
- Production
 - 2020 – 45,045,000 bu
 - 60 lb = 1 bu

Growth and Development

Using Feekes Growth Scale - Vegetative stage is through Feekes 5, reproductive stage begins at 6

- Germination –when seed is exposed to adequate moisture, oxygen, and temp.
- Seedling growth – until 9 or more leaves have unfolded
- Tillering – from 1 to 5 tillers
- Stem elongation – starting from detection of 1st node
- Booting – flag leaf sheath extended to first visible awns
- Inflorescence emergence – Spikelet visible to complete emergence
- Anthesis – 5 to 7 days after heading, beginning to completion of flowering
- Milk – kernel development to late milk
- Dough – early (mealy), soft to hard dough
- Ripening – kernel approaches harvest moisture (hard dough to harvest ready)

Rotation and Seeding

- Wheat grows well in rotation – not recommended after corn or small grains when alternatives are available
- Good seed-to-soil contact is needed
- Seed depth should be 1 to 1.5 in under irrigation and good soil moisture
- Row-spacing of 6 to 8 in with commercial drills provides uniform distribution of seed
- Seeding rate* depends on seed size
 - Irrigated: 1 – 1.2 million seeds per acre (65 to 120 lb/A)
 - Dryland: 700,000 seeds per acre (55 to 90 lb/A)

*Increased seeding rates recommended with delayed planting or poor seed bed.
- Optimum germination - when soil temperature is between 55 and 75°F

Optimum Planting Date Estimates

<u>Location</u>	<u>Timing</u>
Treasure Valley	Late Feb to mid-March
Magic Valley	Mid-March to early April
Upper Snake River Plain	Late March to late April

Irrigation

- Time to meet evapotranspiration (ET) and seasonal crop needs

- Greatest yield reduction occurs with moisture stress at:
 - Tillering
 - Boot to flowering
- Evapotranspiration (ET)
 - ~ 15 to 19 in of water
 - Peak ET occurs in mid-June to mid-July at heading and decreases after soft dough
- Water Holding Capacity (WHC) – the amount of water held in soil for crops
 - Soil texture WHC estimates
 - Loamy > 2 in/ft
 - Sandy loams 1 to 2 in/ft
 - Sandy < 1 in/ft
- Available Soil Moisture (ASM) – the difference between existing soil moisture content and permanent wilting point
 - ASM can be estimated by subtracting ET from the WHC if the soil profile WHC and soil moisture lost to ET are known
- Center Pivot Systems
 - Early season - supply soil root zone with moisture
 - Late season, pivot may not supply sufficient water to keep up with ET in which case **additional soil water reserves will be needed**

2020 S. Idaho Soft White Spring Wheat Quick Facts

University of Idaho College of Agricultural and Life Sciences

- Surface Irrigation Systems
 - 1st irrigation should occur at 50% ASM (earlier on sandy soil)
 - At least 50% ASM maintained from tillering to soft dough

Fertilization

- Soil Sampling
 - One to two weeks prior to planting
 - 0- to 12-in and 12- to 24-in sample depth for nitrogen (N) and sulfur (S) separated by depth
 - 0- to 12-in for other nutrients
- Estimate of Nitrogen rate – 2.0-2.5 units N/bu yield based on:
 - Inorganic soil test N
 - Mineralizable N from OM = 30-60 lbs N/A (estimated typically at 45 lb N/A)
 - Crop residues
 - Potato/sugarbeet/onion residue is accounted for by soil test
 - Alfalfa provides 40 to 80 lb N/A beyond soil testing
 - Small grain residue – ADD 15 lb N for each ton of residue returned to the soil (up to 50 lb N/A)
 - Application timing
 - Loamy soil – single preplant or 40% preplant, 60% at tillering
 - Sandy soil – split 40% preplant, 60% at tillering

- No additional N recommended after tillering for SWS

- Phosphorus (P, P₂O₅) - Pounds of P₂O₅ applied based on soil test and percent free lime.

<u>Olsen Soil Test (0-12 in)</u>	<u>Percent free lime</u>			
	0	5	10	15
ppm	lbs P ₂ O ₅ /acre			
0	240	280	320	360
5	160	200	240	280
10	80	120	160	200
15	0	40	80	120
20	0	0	0	40

- Potassium (K, K₂O)
 - Response can be expected in soil with <75 ppm K (0-12 in sample)
- Sulfur (S, SO₄)
 - 0- to 24 in sample depth
 - At < 10 ppm S (or <35 lb/A) and low-S irrigation water
 - 20 to 40 lbs/A of sulfate-based fertilizer can result in yield response
- Other important nutrients: Chloride (Cl), Fe, Mn, Fe, Zn, Cu, B

Growth Regulators

Ethephon (Cerone) and/or Palisade
Apply at labeled rates and timing to reduce lodging, plant height

Common Diseases

Stripe rust, Fusarium head blight (FHB), root rots (Fusarium crown rot, Rhizoctonia, take-all), cereal cyst nematode, bacterial blight, loose smut, seedling blight (Pythium) and other nematodes

Common Insect Pests

Aphids, cereal leaf beetle, thrips, Haanchen barley mealybug, wireworms, armyworms, cutworms

Common Weeds

- Annuals: wild oat, green foxtail, kochia, common lambsquarters, redroot pigweed, feral rye, wild buckwheat, and various mustards
- Perennials: Canada thistle, field bindweed, quackgrass

Prepared by: J.M. Marshall, C.W.

Rogers, A. Rashed, O. Walsh, X. Liang,

O.S. Walsh, and A. Adjesiwor

References:

Brown, B. Walsh, O. 2016. Planting Dates in Wheat Production in Southern Idaho. University of Idaho AES BUL 906.

Hagerty and Smiley. 2017. A Field Guide for Diagnosing Common Wheat Maladies of the PNW. PNW 698.

Brown, B., Stark, J., Westermann, D. 2001. Southern Idaho Fertilizer Guide: Irrigated Spring Wheat. University of Idaho AES BUL 828.