Spring Wheat Facts (NASS-ID)

- Harvested Area
 - \circ 2024 435,000 acres
- Average Yield
 - \circ 2024 89 bu/A
- Production
 - 2024 38,715,000 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)
 - o 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

Location	<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:
 - o Tillering
 - o Boot to flowering
- Evapotranspiration (ET)
 - $\circ \sim 15$ 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
 - o 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

- 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
 - o 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
 - o 0- to 12-in for other nutrients
- Estimate of Nitrogen rate 2.0-2.5 units N/bu yield based on:
 - o 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.

Olsen Soil	Percent free lime				
<u>Test</u>					
(0-12 in)	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)
 - o 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

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