Wheat Variety Selection

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Main Regions of Wheat Production in California

- Fall-Sown Spring Wheat (Hard Red, Hard White):
  - Central Valley
  - Rainfed (Central Valley foothills and similar areas)
  - South-central coastal areas

- Fall-Sown Durum:
  - Imperial Valley
  - San Joaquin Valley

- Fall-Sown Winter Wheat (Soft White, Club, Hard White):
  - Intermountain area (Northeastern California)

- Spring-Sown Spring Wheat (Soft White, Club, Hard Red, Hard White):
  - Intermountain area (Northeastern California)
General Considerations

• Importance of diversity in selecting varieties
  – Spread out production risk
  – Willing to change varieties year to year

• Varieties appropriate for cropping system

• Varieties meet market requirements

• Varieties can be profitably produced
Traits to Consider

• Grain yield potential
  – Integration of many factors
  – Base selection on multi-year performance data

• Growth and development characteristics
  – Vernalization requirement?
  – Day length insensitivity?
  – Time to heading?
  – Time to maturity?
Traits to Consider

- Growth pattern
  - Stand establishment
  - Tillering capacity

- Stature (plant height)
  - Stress environments
  - High input systems
Traits to Consider

- **Disease reactions**
  - Stripe rust: All regions except IV, S. Calif.
  - Septoria tritici blotch: Sac and N. SJ Valley
  - BYDV: All regions
  - Leaf rust and powdery mildew: Sporadic
  - Bacterial blights (black chaff, etc.): Minor
  - New/emerging diseases: Be alert
Traits to Consider

• Insects and other pests
  – Aphids: Avoid varieties that support high infestations
  – Avoid the most sensitive varieties
  – Monitor crop, adjust variety selection from year to year

• Tolerance to pesticides
  – Use varieties that show only minimal crop damage from fungicides, insecticides, and herbicides
Traits to Consider

• **Grain protein content**
  – Hard wheat and durum wheat vs soft wheat

• **End-use quality**
  – Flour yield and millability
  – Starch quality
  – Nutrients, minerals, enzyme levels

• **Market access traits**
  – low alpha amylase (falling number)
  – low cadmium (durum)
Traits to Consider

• End-use as green chop
  – Boot stage harvest
    • Taller stature, early maturing
    • High biomass
  – Soft dough stage harvest
    • Short to medium stature, early-midseason maturing
    • High biomass
    • Lodging resistant, disease resistant
Sources of Information

• UC Statewide Small Grains Testing Program
  – Agronomic characters: Plant height, lodging, heading/maturity
  – Disease reactions: Stripe rust, leaf rust, Septoria tritici blotch, BYDV, powdery mildew, other
  – Grain yield, bushel weight, kernel weight
  – Quality: Protein content, milling/baking (CWC lab)
Sources of Information

• UC Small Grains website (//smallgrains.ucdavis.edu/):
  – Results of UC Statewide Small Grains Testing Program
    – Agronomy Progress Reports from 1998 to 2012
  – Wheat variety descriptions
    – All varieties evaluated from mid-1970’s to 2011
Sources of Information

• California Wheat Commission website: (www.californiawheat.org/):
  – Certified Wheat Seed Buying Guide
  – California Wheat Crop Quality Reports
  – California Wheat Seed Dealers and Distributors Guide
Sources of Information

- California Wheat Collaborator Meeting
  - Held annually
  - Participants represent all segments of wheat industry
    - Breeders and researchers, farm advisors and consultants, seed company reps, millers and bakers, growers and others
  - Discussions on potential of new varieties and elite germplasm for production in key regions of CA; other issues of interest