

## WERA San Diego January 19, 2012

1. Introduction – Russ Karow
  - a. Project overview
  - b. Project renewal status
2. State and company reports – Arron Carter facilitator
  - a. Mike Pumphrey – WSU
    - i. Genetics of grain quality – phenolics, antioxidants, micronutrients
    - ii. Breeding for quality using markers – predictive assays to save time and dollars
    - iii. Kernel quality – using color and kernel sorter, can do shape as well
    - iv. TCAP – drought, disease resistance focus
  - b. Arron Carter
    - i. Winter wheats – also focus on early generation testing for quality
    - ii. adding high protein gene to HRW – at Lind in 2011 – exceptional yield at 65 bu/a with 15% protein – suggests true effect – but need to look at quality as well in addition to quantity – is test weight drag but no apparent yield drag
  - c. Westbred – Dale Clark
    - i. WB Gunnison and Quake – saw fly varieties released in 2010-11 - Lack of pheromone is reason for “resistance” versus solid stem -not attractive to flies
    - ii. Clearfield resistant varieties – WB1035 Soft white spring with 2-gene Clearfield – will have overseeding capability – OK for quality – SRC high
    - iii. Brundage very susceptible to stripe rust in 2011 – WB456 alternatively did not show rust and so taking over S Idaho acreage
    - iv. Significant hard white winter in progress
  - d. Oregon State
    - i. Bob Zemetra new breeder
    - ii. Stripe rust uniformly spread and so selection easy
    - iii. Trying to develop early generation testing for quality to improve program efficiency - @3000 head row samples tested annually
    - iv. Starting to run SRC panels on materials in crossing blocks
    - v. Going into existing mapping populations to look for QTLs but have found superior quality types in populations in which there was no expectation for quality – 85% of progeny better than soft white parent for cookie diameter – epistasis of some sort
  - e. Lima-Grain – Jean-Bruno Beaufume - new PNW breeder - just starting in area – will have quality focus – new NIR and single kernel quality – building milling facility –modified Quad Senior
  - f. Idaho – Juan Li Chen
    - i. Quality
      1. doing all classes but SRW and durum – using standard checks and standard array of tests within a class – compare all materials to checks and only keep if better – SRC and baking on hard lines – doing full analysis on materials that clear extension trials
      2. Germplasm improvement – under TCAP doing phenotypic assessment of national germplasm collection – base populations for water use efficiency and drought resistance – will have some quality data
      3. EMS mutagenesis work for quality work also being done
      4. Looking for higher lactic acid SRC levels for cracker use

- ii. Juliet Marhsall
    - 1. had up to 72% yield loss in unsprayed plots due to rust
    - 2. Fusarium head blight – over 5ppm in non-corn situation – in corn areas likely to be on-going problem if weather stays conducive
- g. Idaho Wheat Commission – Blaine Jacobsen
  - i. Non-exclusive relationship with Limagrain – oversee Moscow breeding station and involved in marketing of all UI varieties
- h. Pendleton Flour Mills – ran SRC first time in last year – if in 75-90 range are OK for their products
- i. SRC variation – Andrew Ross – is great and consistent variation among labs- don't know cause of variation –consensus is that would be value for strong dough strength types but how such varieties could be delivered is not know - whole grain use requires stronger dough strength – seems to be benefit to having a range so that different needs can be met
- j. California – Janice Cooper CA Wheat Commission – good crop 2011 – five of six market classes grown – stripe rust was common – no rain in fall 2011 – 80% of crop irrigated and don't have water available to irrigate so real concern about yield potential impacts – Commission has had to provide additional funding as well for extension and research – mini-grant program for extension (\$100K) for field research on water and nitrogen efficiency - has own quality lab and send results
- k. Syngenta Cereals – SY Ovation recent release and seems to be doing well – two springs up for release – hiring new staff to increase regional efforts – Simon Philips is new marketing person – looking at crop protection x variety interactions
- l. Colorado – Scott Haley
  - i. Did not have stripe rust in 2011 but did in 2010 – good selection capability as with others
  - ii. Acreage stable (2.3/2.4M acres) – yields continue to be above average
  - iii. Saw fly – has moved into state – survey being done to determine extent of infestation – have made crosses with resistance types
  - iv. Released three varieties in fall 2011 – two of three good quality, other average
    - 1. Byrd – good quality though small kernels
    - 2. 2-gene Clearfield – Brawl CL+
    - 3. 8% of CO in Clearfield single gene
  - v. Genomic selection – predictive capability development – has panel of 400 varieties being grown at two locations – nitrogen differential – will do genetic assessment – TCAP funding – looking at nitrogen use efficiency
  - vi. Hard white – still no critical mass – in 2007 had significant acreage and high yields but 9% protein and no interest – KN, NB, OK all reducing efforts
- m. Hard whites – general agreement that is interest but production at acceptable protein levels is problematic
- n. Craig Morris – USDA Cereal Quality Lab
  - i. Variety testing programs continue to cornerstone of efforts
  - ii. Have done work on super softs – unclear as to whether these are the same types as in other states – have had negative kernel hardness values (-5) in past but not in recent materials
  - iii. AFRI grant on dietary fiber, antioxidants, flavor
- o. Gary Hu – Wheat Marketing Center
  - i. 20 classes
    - 1. 6 grower

2. 2 elevator
  3. 7 baking and milling classes
  4. 4 Asian noodle classes
  5. Wheat value workshop for miller
- ii. Tours for school groups – 12
  - iii. Research
    1. Whole grain products
      - a. Crackers
      - b. barley food products – Asian and South America workshops
    2. additives to reduce discoloration of fresh noodles – can take out to three days with lesser
    3. are developing IP with people doing work in lab
    4. have seen changes in specifications on some shipments which suggests impact of educational efforts
  - iv. summary of reports – key and common interests
    1. early generation selection using genetic markers
    2. pest resistance
- p. Chair 2013 – Mike Pumphrey, WSU
  - q. Vice Chair 2013 – Andrew Ross, OSU