

Development of Kentucky Bluegrass for Non-burn Seed Production

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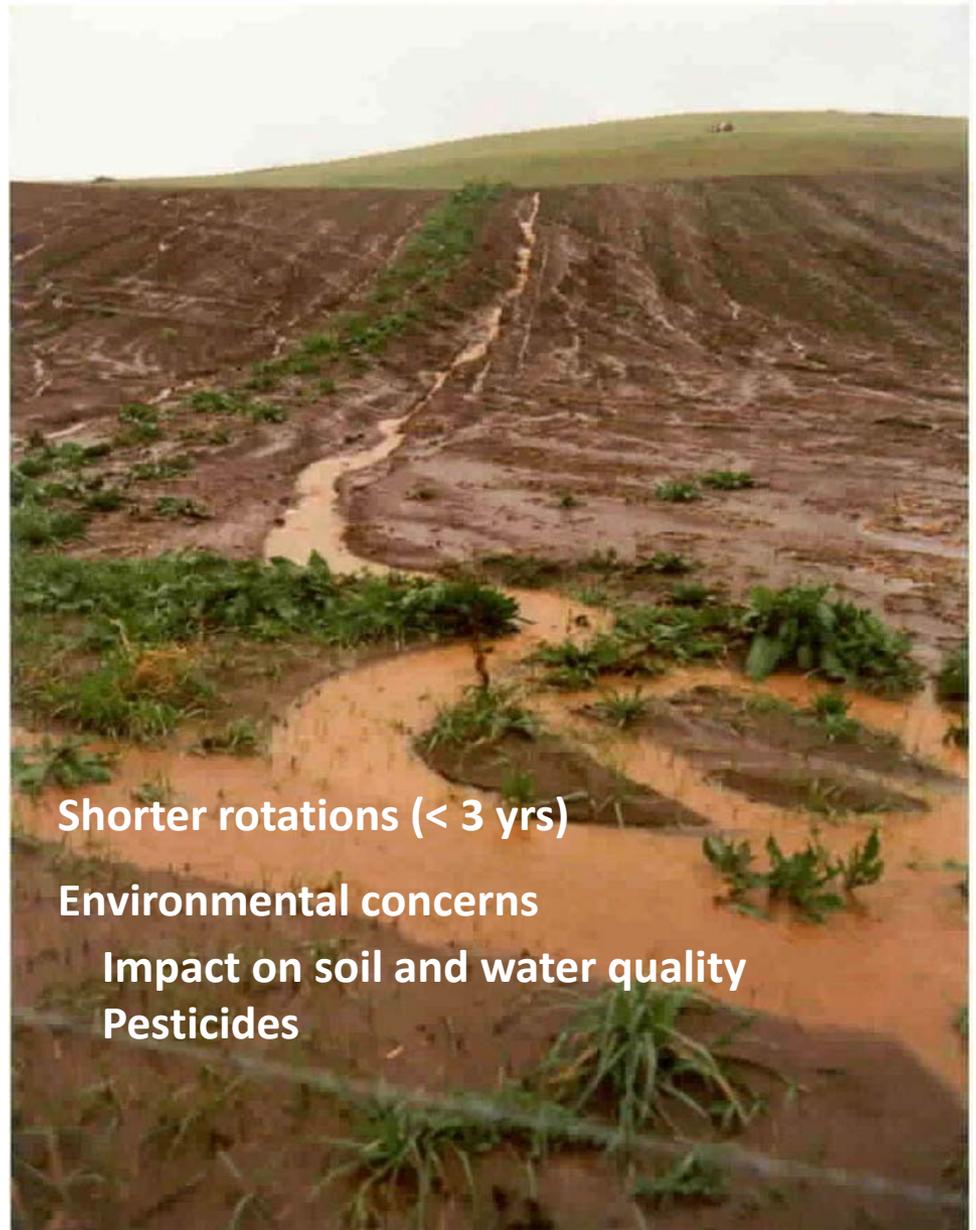
Justification



Burning no longer allowed in WA
Bale to remove residue



Less economic return



Shorter rotations (< 3 yrs)

Environmental concerns

Impact on soil and water quality

Pesticides



Objective 1 (1994-2006)

Identify Kentucky bluegrass germplasm that has good turfgrass quality while producing sustained seed yield under non-burn seed production

Germplasm Source



**Initially, more than 200
accessions were tested**



1994-1995



1996-1999

- **40+ selections in seed production and turfgrass trials**
- **8 Selected for seed yield under bale residue removal and good turfgrass quality**

Origin of Accessions:

PI368241	Palmer, Alaska
PI349188	Haines, Alaska
PI371775	Juneau, Alaska
PI371768	Hope, Alaska
PI539057	Siberia
PI539059	Siberia
PI230132	Iran
PI574523	(‘Belturf’)
Midnight	Oregon, donated by Pure Seed Testing
Kenblue	donated by U. Kentucky

Selection for Seed Yield Components



2002-2004

**28 individual plants
of each accession
replicated 3 times**

Selection was for plant with highest:

- 1) # Panicles per area**
 - 2) # Seeds per panicle**
 - 3) 1000 Seed weight**
 - 4) Seed yield per plant**
- + Base population**



Seed Increase 50 Selections at Central Ferry, WA

2004



2006





Objective 2 (2007-2011+)

Evaluate effectiveness of seed yield component selection to enhance seed production while maintaining turf quality

Turfgrass Trial

- 50 entries planted in a randomized complete-block design with 3 replications
- **Quality**, Color, Texture, and Chlorophyll rated monthly

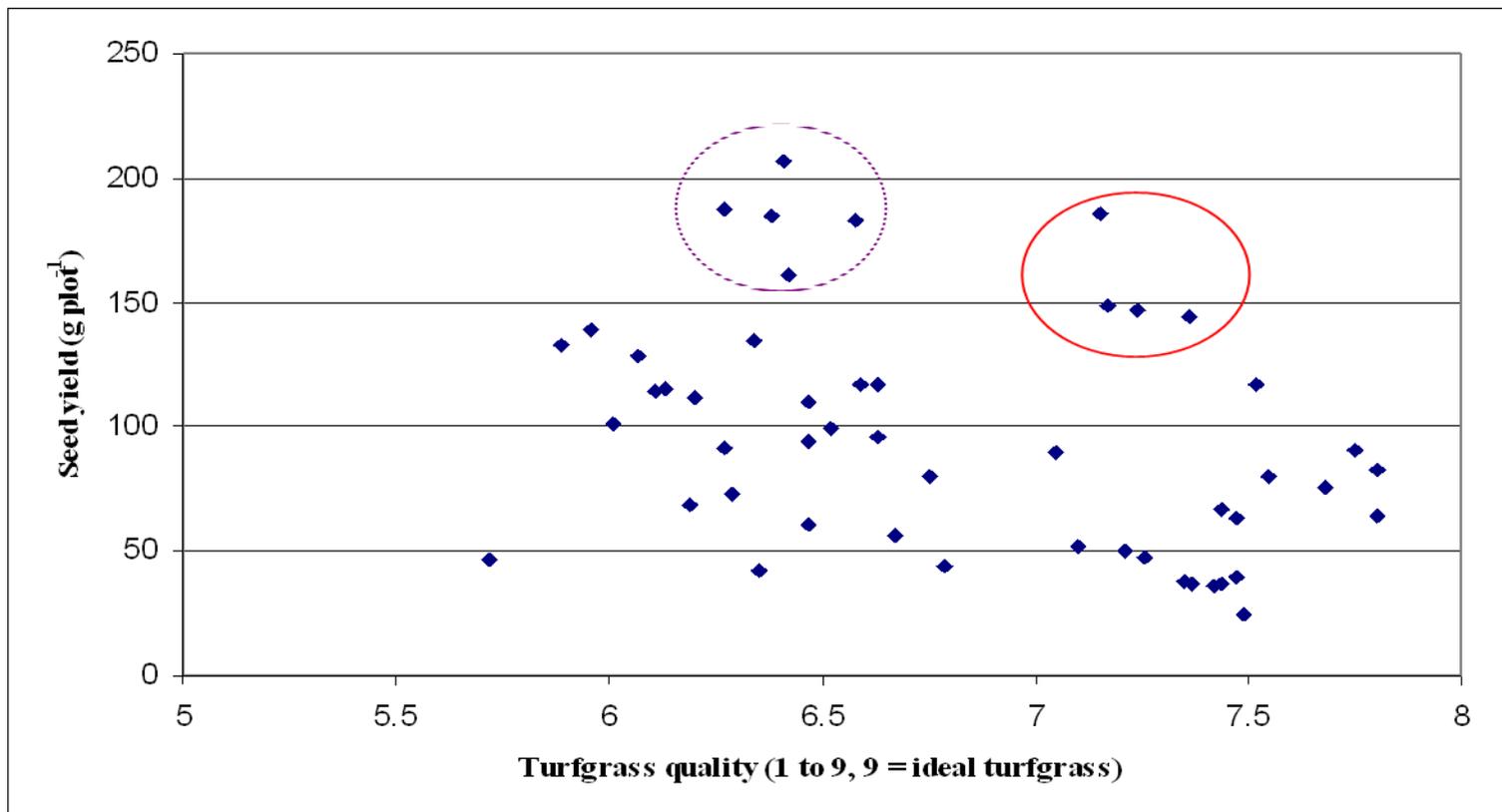


Seed Production (Irrigated and Non-irrigated)

- 50 entries planted in a randomized complete-block design with 3 replications
- **Seed yield**



Kentucky bluegrass seed yield (2008) vs. turf quality (mean of 2007 and 2008) for entry x selection parameters at Pullman, WA



“The Winners”

Germplasm	Yield component	Seed yield (lbs/acre)	Quality (1-9; 9 best)
371775	Seeds per head	825	7.2
371775	Yield per plant	660	7.2
371775	Base	656	7.2
371775	Heads per area	642	7.4
Kenblue	Seeds per head	923	6.4
368241	Yield per plant	838	6.7
368241	Base	825	6.4
368241	Seeds per head	816	6.3
368241	Heads per area	718	6.6

Conclusions (2007-2009 Project)

- **Several selections showed promise as higher yield-higher turf types for non-burn production**
- **Selection for yield components was not clearly linked to high yield and high turf types**
- **Currently only one year of seed yield data**

Current proposal: (2009 – 2011)

- **Continue to evaluate seed production under bale management in diverse environments (dryland and irrigated) for 2nd (2009) and 3rd (2010) harvests.**
- **Continue to test selections for turf quality and stress tolerance at several locations.**