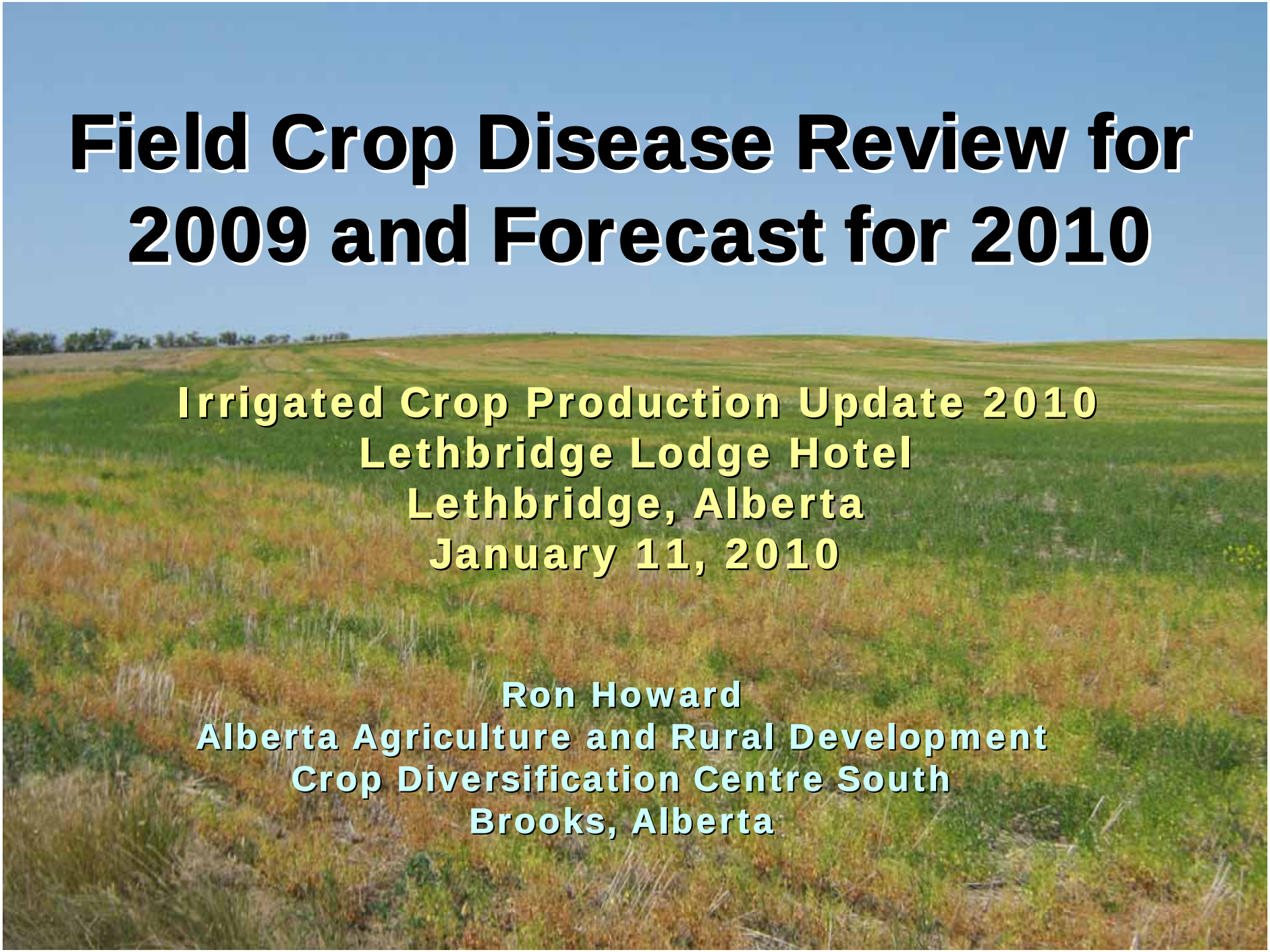
Field Crop Disease Review for 2009 and Forecast for 2010



Irrigated Crop Production Update 2010
Lethbridge Lodge Hotel
Lethbridge, Alberta
January 11, 2010

Ron Howard
Alberta Agriculture and Rural Development
Crop Diversification Centre South
Brooks, Alberta

Outline

- An Overview of the 2009 Growing Season in Southern Alberta
- Disease Situation Reports for Cereal, Oilseed and Pulse Crops in 2009
- Crop Disease Forecast for 2010
- Acknowledgements

2009 Growing Season in Review

- Late April snowfall improved soil moisture conditions, but delayed soil warming and seeding
- Rain showers, snow and frost in early May further hindered seeding and crop development was 10-15 days later than normal
- Late May and early June were dry with some frost
- Rainfall and warm temperatures returned by mid-June, but some reseeding was required
- Scattered rain showers fell in late June, but most crops remained 7-14 days behind normal

Uneven Maturation in Canola

Uneven Maturation in Lentils

Drought Damage on Winter Wheat

2009 Growing Season in Review

- Significant rain fell in the first two weeks of July, but hailstorms damaged crops in some areas
- Warm weather in mid- to late July and rains in early August considerably improved crop growth
- A hailstorm on August 3 caused major crop damage from Enchant to Bow Is. e.g. 3500-4000 ac of beans were lost and another 8000 ac were injured

2009 Growing Season in Review

- Hot, dry weather in late August and throughout September advanced crop maturity and enabled harvesting to proceed at a steady pace
- Showers and cooler weather slowed the pace of harvesting in October, but above-average temperatures in early November allowed most producers to finish up
- Yields and quality of most crops were average to below average, with a few exceptions

Cereal Disease Survey

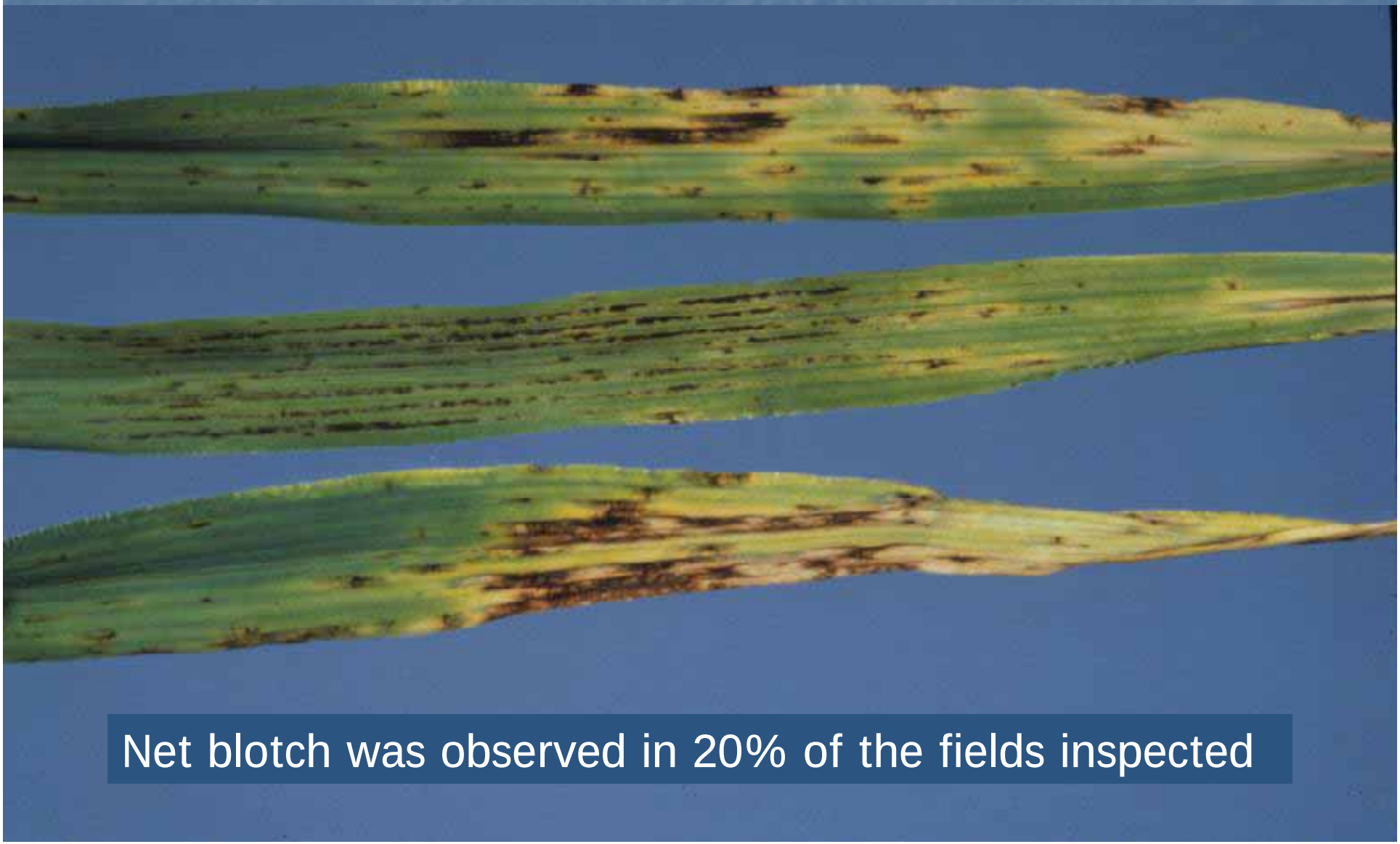
- Field surveys were done by Byron Puchalski, AAFC, Lethbridge, from June 3 to July 28
- 76 fields of winter wheat and 14 fields of barley were examined
- The survey included fields south of Highway #1 to Montana border and from the Saskatchewan border west to Pincher Creek
- Some diagnostic samples were also received at the Lethbridge Research Centre

Tan Spot on a Spring Wheat Seedling

Tan spot was the most prevalent leaf disease in spring and winter wheat crops

- 40% of spring wheat fields had the disease and the incidence was 80%
- 5 to 30% of the leaf area was infected in winter wheat

Net Blotch on Barley



Net blotch was observed in 20% of the fields inspected

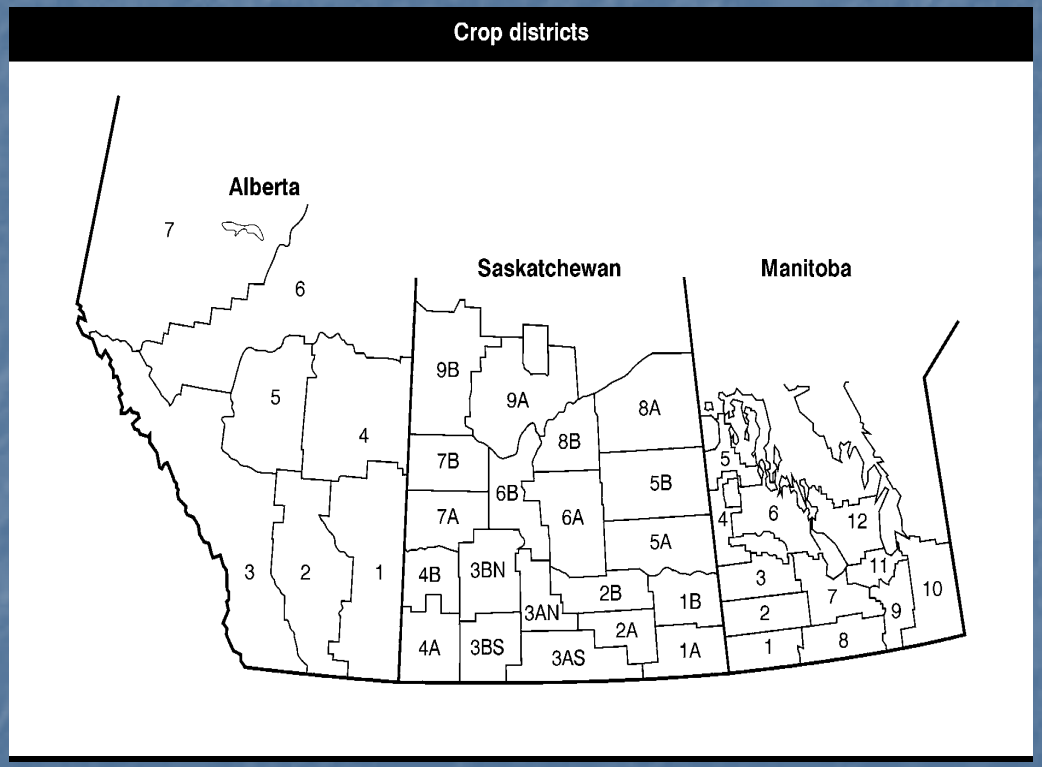
- SR was first seen in winter wheat nurseries in the Lethbridge area on June 28
- SR was not seen on overwintering juvenile winter wheat plants
- Very little SR was seen in cv. Radiant fields
- Fields of cv. Bellatrix in the Medicine Hat area had incidence levels of 40% and up to 50% of the flag leaf area was infected
- By July 6, SR was becoming prevalent in spring wheat in the Lethbridge, Granum, Nobleford, Taber and Bow Island areas

- Stripe rust was present in 46% of SW fields from Fort McLeod to Bow Island, but incidence was relatively low because of the popularity of the resistant cv. Lillian
- Susceptible SW cultivars had 20 to 80% of the flag leaf infected
- Dry conditions limited SR infections in dryland crops, but irrigated fields remained at risk until mid-August
- Powdery mildew was common in irrigated SW fields by early August
- No SR was seen on barley and ergot levels were low

Fusarium Head Blight on Wheat and Barley

Fusarium Head Blight in 2009

- FHB was common in irrigated durum wheat fields in southern Alberta by mid-August
- An analysis of *Fusarium*-damaged kernels (FDK) by the Canadian Grain Commission, Winnipeg showed that *Fusarium graminearum* was common in wheat samples from Crop Districts 1 and 2 in Alberta



Fusarium Head Blight in 2009

CD 1 (Southeast region)

- 9.9% of CWRS samples were downgraded because of FDK (average = 1.67% by weight)
- 8.3% of CWAD samples were downgraded because of FDK (average = 1.65% by weight)

CD 2 (South-central region)

- 11.2% of CWRS samples were downgraded because of FDK (average = 1.10% by weight)
- 18.3% of CWAD samples were downgraded because of FDK (average = 2.10% by weight)

Fusarium Head Blight in 2009

- 90% of CWRS and 100% of CWAD varieties grown in Alberta in 2009 were rated poor to very poor for resistance to FHB
- FDK samples were mainly infected by *Fusarium graminearum* (45%) and *F. culmorum* (30%)
- 28 isolates of *F. graminearum* from southern Alberta were tested for chemotype and 93% were the 15ADON and 7% were the 3ADON type
- The 15 ADON type is being slowly displaced by the 3ADON type in the eastern Prairies

Sclerotinia Stem Rot on Canola

Clubroot on Canola and Mustard

- No clubroot was found in surveys done by ASB staff in southern Alberta
- In central Alberta, 49 new canola fields out of 224 surveyed in central Alberta were found to have clubroot with one new county (Minburn) infested

Ascochyta Blight on Chickpea

Ascochyta / Mycosphaerella Blight on Pea

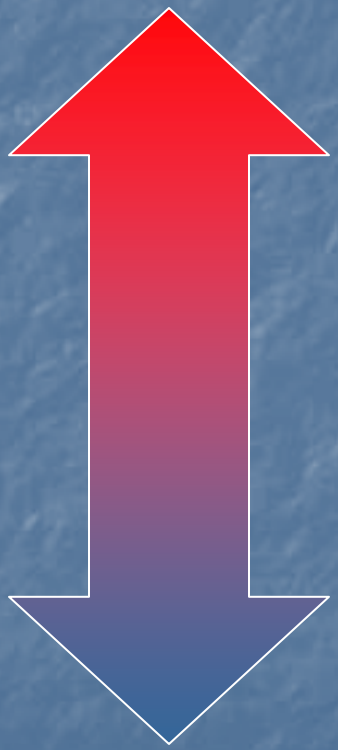
White Mold on Dry Bean

Long-Range Weather Forecast
(*The Old Farmer's Almanac 2010*)

- April and May temperatures will be cooler than normal, with most areas receiving above-normal precipitation and snowfall
- Summer will be cooler and wetter than normal in southern Alberta, with the hottest periods occurring in late July and early August
- September will be cooler and wetter than normal
- October will be warmer and drier than normal

Weather Effects on Plant Diseases

MORE DISEASE



LESS DISEASE

Warm & Wet

Cool & Wet

Warm & Dry

Cool & Dry

Disease Forecast for 2010

- Overwintering inoculum levels will be high for some seed and residue-borne diseases, e.g. tan spot and FHB on wheat, ascochyta blight on chickpea, and white mold on pulses and canola
- Cool spring conditions could delay germination and excess precipitation will encourage seedling diseases, e.g. seed decay, leaf spots and blights
- Cool, wet weather in summer and fall will favor the development of root, foliar and head diseases
- Growers are advised to follow recommended crop rotations, use resistant varieties where available, scout fields on a regular basis, and be prepared to apply crop protection products where required.

Acknowledgements

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