FIELD, PESTS, & DISEASE DIAGNOSTICS IN SEED CROPS

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DEFINITION & IMPORTANCE OF WEED IDENTIFICATION OF PROBLEMATIC WEEDS OF TARGET CROPS
INTRODUCTION

• Special emphasis on weed identification and control measures

• Objectives:
  - To allow you to develop some general perspective of the competitive effects of weeds in arable lands
Introduction: Weed Science

- Weed Science = derived from several disciplines
  - Plant Anatomy
  - Organic Chemistry
  - Biochemistry
  - Soils & Crop Sciences
  - Agricultural Engineering
  - Economics
  - Environment
  - Climate variability
Introduction: Weed Science

- Aim:
  - Highlight major world weed species
  - Specify competitive effects
WEEDS

- Familiar plants: visible, observable, and found anywhere
- Competing with crops & livestock
- Invade the pristine environment
- Infest ponds, sidewalks, gardens, croplands, forests, etc.
Weeds feature in all crops

- Bad or good plants
- Existence of valued weeds
- Valueless weeds: not yet discovered or unravelled

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Problems associated with weeds

- Competition for light, water, nutrients, space
- Harbor pests and diseases = allergic to human beings
- Affect livestock and wild game
- Poisonous to human beings and livestock
- Produce allelochemics (allelopathy)
- Play alternate hosts to diseases, pathogens, and fungi
Problems associated with weeds

- Major economic crop loss (30% to 100%)
- Contaminate harvested products affecting quality
- Reduce land value
Benefits / Advantages:

- Beauty, aesthetics
- Soil binding
- Ecosystems modification
- Medicinal
- Protection of wind and water erosion
- Some species are excellent forage for livestock
Benefits / Advantages

- Becomes “a crop”
- Provide shelter and food for birds and wild game
- Making household artifacts
Overview of weed classification

• Grouping of weeds whose similarities are greater than their differences
  - Terrestrial and aquatic
  - Woody and herbaceous
  - Trees and shrubs
  - Sedges and forms
  - Families, genera, species, and variety
Overview of Weed Classification

• Grouped in life cycles

  - Annuals: complete their life cycles in one growing season, usually one year

  - Biennials: normally grow for two seasons to complete lifecycles

    form leaves, rosettes during 1st year

    set seeds in 2nd year
Weed Classification: Grouped in life cycles

- Perennials: live for more than 3 years and flower any time during their lifecycles
  - propagate and spread by asexual means
  - very difficult to control
Common Prevalent Weeds in Cropland

- Barnyard grass (*echinochoa Crus-galli*)
- Foxtail (*setaria spp*)
- Wild oat (*avena fatua*)
- Pig weed (*amaranthus spp*)
- Morning glory (*ipomoea spp*)
- Ragweed (*ambrosia artemisia*)
- Lambsquarters (*chenopodium spp*)
Common Prevalent Weeds in Cropland

- Perennials:
  - Bermudagrass (cynodon dactylon)
  - Johnsongrass (sorghum halepense)
  - Field bindweed (convolvulus arvensis)
  - Milkweed (asclepias spp)
Common Prevalent Weeds in Cropland

• Sedges:
  - Purple nutsedge (Cyperus rotondus)
  - Yellow nutsedge (Cyperus esculentus)
Weeds found in various annual & perennial crops

- Amaranthus spp
- Chenopodium
- Avena
- Double thorn
- Portulaca
- Paspalum conjugatum
- Imperata cylindrica
- Digitaria spp
- Rottboellia exaltata
- Cyperus spp
Annual & Perennial Weeds

Annual Weeds:
- Compete with crops
- Reduce yields tremendously (if not controlled)

Perennial Weeds:
- Take time to establish
- Cause long term control measures with varying degrees of success

Sedges:
- Commonly found in moist areas
- Not readily controlled
Conclusion

- Early control of weeds at early stages allows for higher crop fields
- High quality harvest
- Economic benefits
- Availability of adequate food in a given season
- Poverty reduction - SDGs
Thank you!

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