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

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

- Annuals:

  -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!