






Field Diagnostics of Annual Crops

One of the first steps in field diagnostics is to look for patterns of symptoms (e.g., damaged, discolored or different height plants) across the field. In field crops (like cereals and vegetables, etc.) five common patterns can give clues as to the potential causes of the problem(s) (See Table).

Pattern	Common cause(s)	Pattern	Common cause(s)
 Along field edge	Nitrogen Birds Wind (if on one side)	 Random Across Field	Insects Micronutrient deficiency Pests – e.g., Birds
 Strips across field	Management	 Scattered Clusters	Nutrition (esp. Nitrogen) Insects Diseases Pests (rats, GLH) Water
 General - over entire field	Environmental factors – temperature, moisture stress, Wind Nutrition (e.g., Nitrogen deficiency) – if severe Genetic		

After looking for any patterns, you then look at the symptoms on affected plants to get a further sense of the potential problem(s).

Typical damage	Common Potential Problem(s)
Plant color & reduced size	Nutrient deficiency / water stress
Lesions & color changes	Diseases (nutrient toxicities)
Physical damage, spread of disease	Insects and other pests (e.g., rats)
Missing plants & Physical damage	Pests (e.g., snails, birds, rats, etc.) or flood damage at seedling stage/ poor seed
Plant size, wilting & maturity	Water or timing of N or variety mix
Plant size & tillering reduced	Weeds, dense planting, low temperatures, P or N deficiency
Leaf edge scorching (leaf tipping)	Disease, nutrient deficiency, or environment (e.g., high wind)
Leaf rolling	Insects (e.g., leaf roller) or water stress
Plant stand, height, maturity, weeds, uniformity	Management