

## AL 103 / DRONE - PESTICIDE

**PURPOSE** - Spraying pesticide with a drone—also known as drone or UAV (Unmanned Aerial Vehicle) spraying—serves several agricultural and environmental purposes, mainly centered around efficiency, safety, and precision. It allows targeted application to reduce waste and environmental impact, covers challenging terrain quickly, minimizes human exposure to pesticides, lowers long-term costs, and can integrate data to support informed treatment decisions.

**RESOURCE CONCERN** - When not managed properly, pesticide application can negatively affect natural resources such as water and soil. Excessive or misapplied pesticides may run off into nearby streams, rivers, or groundwater, leading to contamination of drinking water sources and harm to aquatic ecosystems. Similarly, repeated pesticide use can degrade soil structure and reduce microbial activity, ultimately lowering soil productivity. However, drone spraying—when used responsibly—can help mitigate these risks. By allowing for precise, targeted application, drones reduce the likelihood of runoff and limit chemical buildup in the soil, helping to protect water quality and support long-term soil health

**MANAGEMENT** - Effective drone pesticide application requires thoughtful planning and monitoring to ensure sustainability and effectiveness. One key approach is Integrated Pest Management (IPM), which uses drones as part of a broader strategy that includes crop rotation, biological controls, and pest monitoring. Pesticides should only be applied when pest thresholds are reached to reduce reliance on chemicals.

**PRESCRIPTION MAPPING** - is another important practice, using drone-collected data such as NDVI or thermal imaging to create detailed maps that guide targeted, site-specific spraying at optimal rates

**WEATHER AND DRIFT MANAGEMENT** - is essential to minimize off-target impacts. Monitoring wind speed, temperature, and humidity helps reduce pesticide drift and evaporation, and establishing no-spray buffer zones protects nearby water bodies or sensitive areas. Good chemical management also plays a role—selecting pesticides with lower environmental impact, rotating active ingredients to prevent resistance, and keeping detailed records of application timing, location, and quantities.

**CALIBRATION AND MAINTENANCE** - are necessary to ensure accuracy and reliability. Spray equipment should be regularly calibrated to maintain correct application rates, and drones must be well-maintained to prevent leaks or malfunctions. With these practices in place, drone spraying becomes a valuable precision agriculture tool that improves productivity while protecting soil and water resources.

### REQUIREMENTS –

#### Recordkeeping:

- Maintain logs of all applications including:
  - Date/time
  - Product used
  - Rates
  - Weather conditions
  - Operator ID

**COST ESTIMATE** - The applicant will provide the District Administrative Coordinator with a detailed cost estimate for the proposed conservation practice.