

## AL 104 / DRONE - HERBICIDE

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

**RESOURCE CONCERN** - When not managed properly, herbicide application can negatively impact natural resources such as water and soil. Excessive or misapplied herbicides may run off into nearby streams, rivers, or groundwater, contaminating drinking water sources and harming aquatic ecosystems. Likewise, repeated herbicide use can degrade soil structure and reduce microbial activity, leading to a decline in soil productivity over time. However, drone spraying—when used correctly—can help reduce these risks by applying herbicides precisely where needed, minimizing runoff and limiting chemical buildup in the soil. This supports both water quality and long-term soil health.

**MANAGEMENT** - Effective drone herbicide application requires careful planning and monitoring to ensure sustainable and efficient use. A key approach is **Integrated Weed Management (IWM)**, which incorporates drones into a broader strategy that may include crop rotation, cover crops, mechanical control, and weed monitoring. Herbicides should only be applied when weed thresholds are reached to minimize overuse and reduce environmental impact.

**PRESCRIPTION MAPPING** - enhances application accuracy by using drone-collected data such as NDVI or thermal imaging to create detailed treatment maps, allowing herbicide to be applied only where needed and at the proper rate.

**WEATHER AND DRIFT MANAGEMENT** - is also critical—monitoring wind speed, temperature, and humidity helps reduce herbicide drift and evaporation, while setting no-spray buffer zones protects nearby water bodies and sensitive areas.

**SOUND CHEMICAL MANAGEMENT** - further supports effective application. This includes selecting herbicides with lower environmental impact, rotating products to reduce the risk of resistant weed populations, and maintaining detailed records of application timing, rates, and locations.

**CALIBRATION AND MAINTENANCE** - of drone equipment are essential. Regular calibration ensures accurate application rates, and proper maintenance prevents leaks or equipment failure.

When these practices are followed, drone herbicide spraying becomes a powerful precision agriculture tool that improves weed control while safeguarding soil and water health.

### 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.