

### Target Outcomes 2020-2023

- Evaluate and build expertise for practicality and functionality (boom height, nozzle type, etc.)
- Determine economic and agronomic benefit
- Evaluate accuracy and effectiveness of identifying plus targeting small weeds
- Understand when bias mode needs to be used to minimize weed pressure
- Review effect on canola and barley yield (stubble type, spray mode, travel speed)

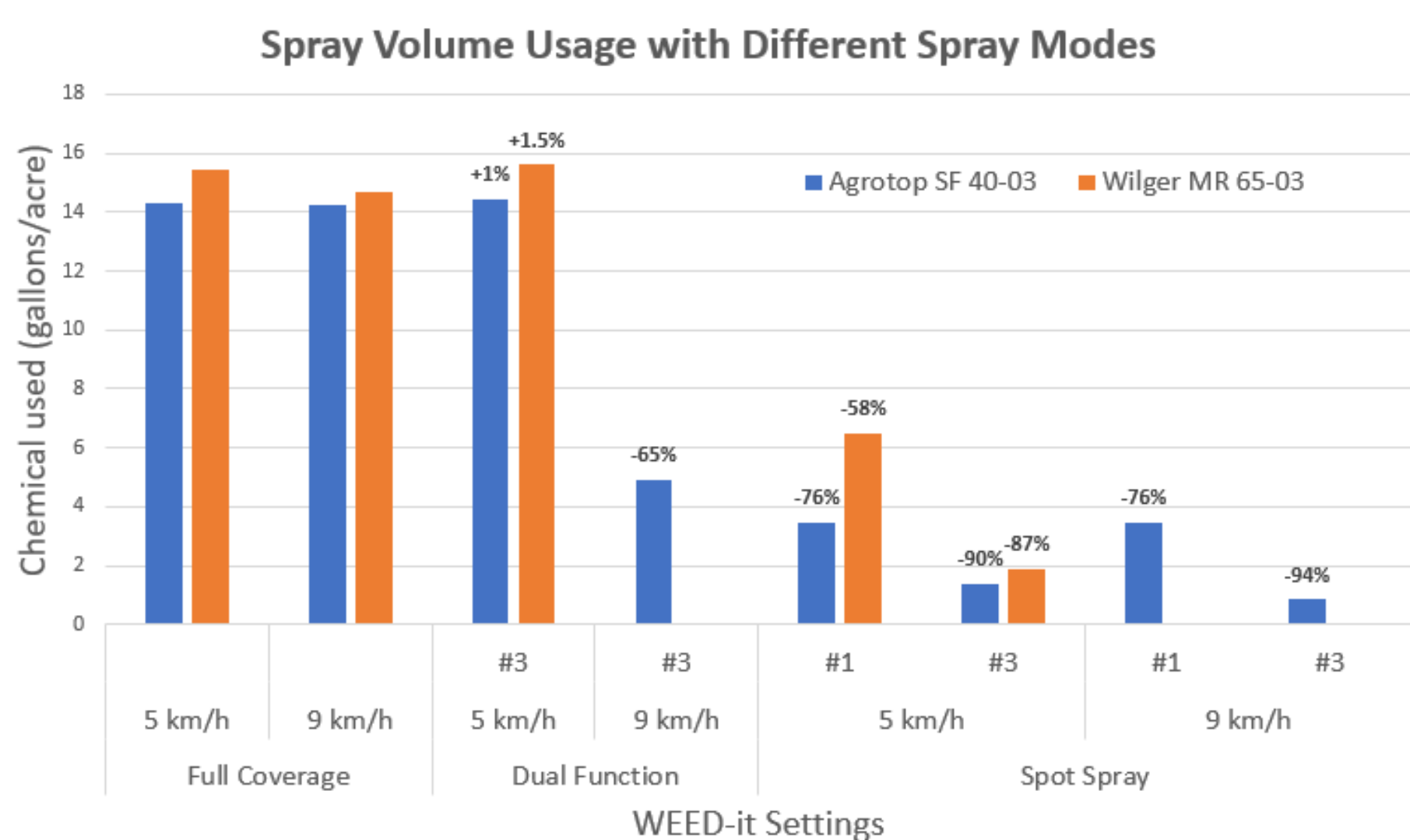
#### Spray Volume Usage

Evaluate the differences of chemical volumes used in relation to the user-selected settings of the WEED-IT equipment.

- system spray modes
- application speeds
- nozzle selections
- sensitivity settings
- field conditions

#### Results:

- Chemical use reductions from 56% - 94% depending on sensitivity and nozzle type
- Supports WEED-IT Quadro's claim of reducing chemical usage up to 90%
- Largest savings: Agrotop SF 40-03 nozzle at sensitivity #3
- Dual spray mode seemed to result in up to 65% reduction of chemicals (using the same nozzle and sensitivity setting)
- Dual spray is not equipped to spray at very slow speeds (5 km/hr)

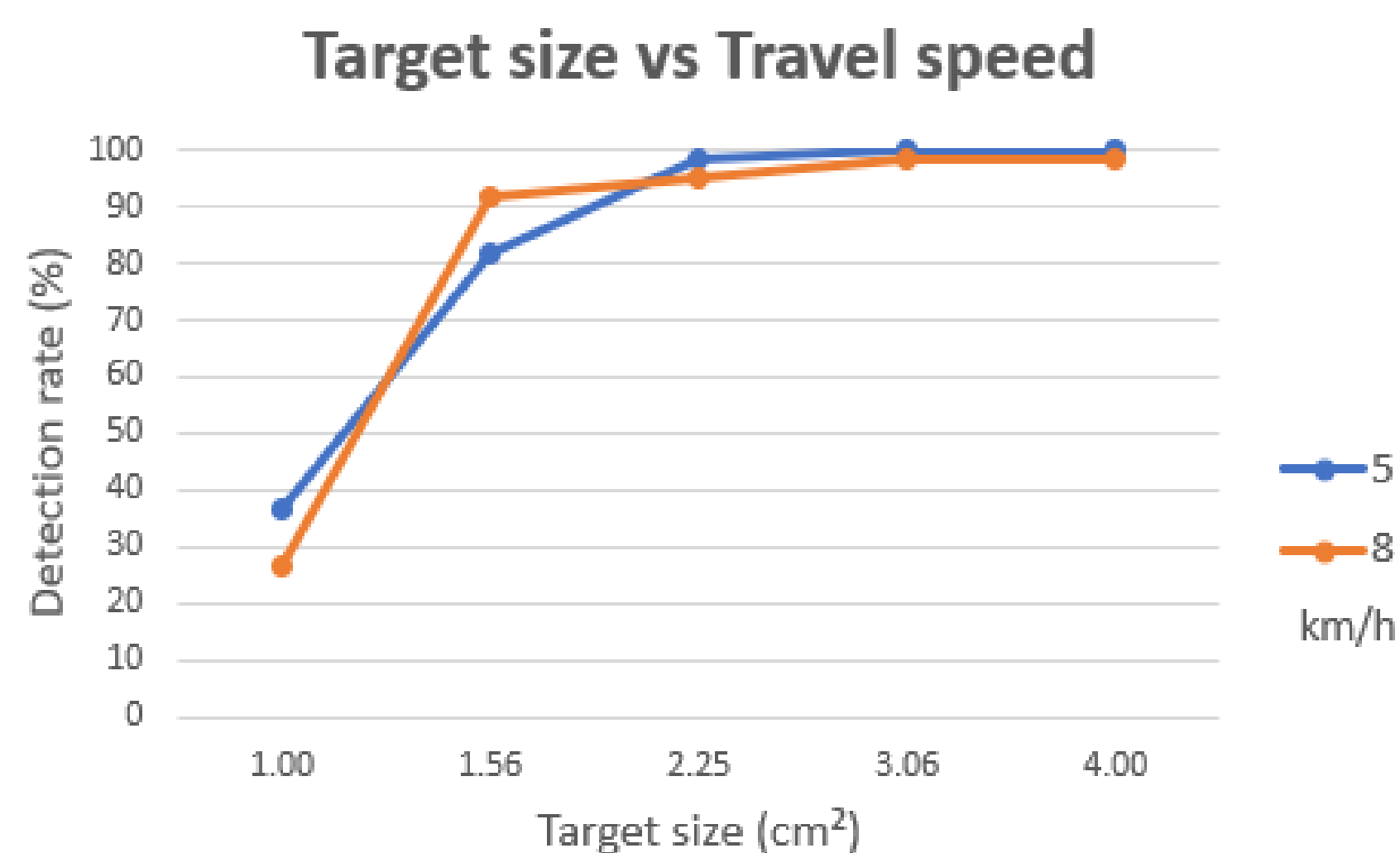


#### Target Detectability Evaluation

Evaluate WEED-IT Quadro's ability to detect targets of various sizes and colors at different ambient light conditions and equipment travel speeds.

#### Results:

- Travel speed did not seem to have a substantial effect on detecting weeds regardless of material, weed size or ambient light conditions (even with a 60% increase in travel speed)
- Effect of target size on detection capabilities varied according to ambient light conditions
- Bright to low light conditions: suggests a decrease in detection rate of approx. 20% (1.56 cm<sup>2</sup>) and 45% (1.0 cm<sup>2</sup>)
- Controlled conditions: detection capability was appeared to be unaltered by travel speed with a high detection rate (>90%) for large weeds (≥1.56 cm<sup>2</sup>) at regular lighting conditions
- Low lighting conditions: detection rate was reduced for small weeds (≤1.00 cm<sup>2</sup>)



#### Preset Margin Evaluation

Evaluate how preset margins defined by WEED-IT Quadro's manufacturers compare to the actual size of the sprayed margins.

#### Results:

- Sprayed margins do not appear to correspond to presets on the WEED-IT Quadro system
- Difference of 245% between preset margin and sprayed margin was experienced on lowest setting of 50 mm
- Difference reduced as preset margin setting increases lowest to highest

