

Injection Systems

Two Classes of Injectors

- Low Disturbance = $<30\%$ Surface Disturbance
- High Disturbance $\Rightarrow >30\%$ Surface Disturbance

Avantages of Injection

- ▶ Odor Control
- ▶ Less Chance for Nutrient Runoff
- ▶ Provides Some Tillage
- ▶ Improved Visual Effect

Field Conditions That Effect Injection

- ▶ Soil Moisture
- ▶ Opener Design
- ▶ Furrow Profile
- ▶ Soil Type
- ▶ Application Rate

Low Disturbance Injectors

Aerway Aerator System



Modified K-Hart Injector



Phantom Injector



Phantom Injector



Yetter Avenger



High Disturbance Injectors

Spike Injector



Sweep Injector





Draft Ratings

Depth	7.6 cm (3 in)		10.2 cm (4 in)		12.7 cm (5 in)		15.2 cm (6 in)	
Injector	N (lbf)	kW (hp)	N (lbf)	kW (hp)	N (lbf)	kW (hp)	N (lbf)	kW (hp)
K-Hart	331 (70)	0.56 (0.75)	485 (109)	0.89 (1.2)	1,592 (358)	2.8 (3.8)	na	na
Spike	1,579 (355)	2.8 (3.8)	1,948 (438)	3.5 (4.7)	na ^a	na	na	na
Sweep	2,055 (462)	3.6 (4.9)	2,411 (542)	4.3 (5.8)	2,549 (573)	4.5 (6.1)	na	na
Yetter	596 (134)	1.0 (1.4)	885 (199)	1.6 (2.1)	1,450 (326)	2.6 (3.5)	2,362 (531)	4.2 (5.7)

Summary

When selecting manure injection technology, it is important to weigh the pros and cons of each system being considered.

- ▶ High-disturbance injection technology controls odor, but results in a lot of residue and soil disturbance and much more draft to pull.
- ▶ Low-disturbance injection technology provides minimal residue and soil disturbance, but does not control odor as well as high-disturbance injection equipment.