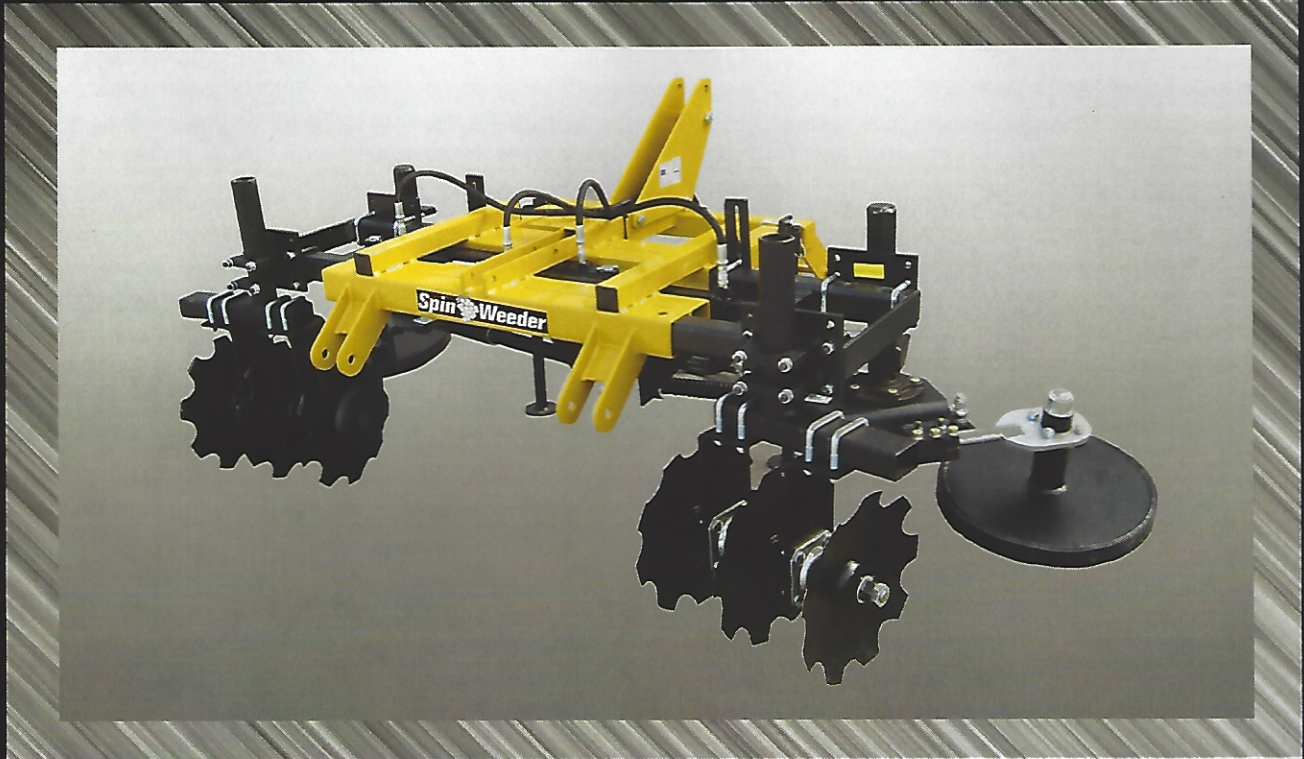


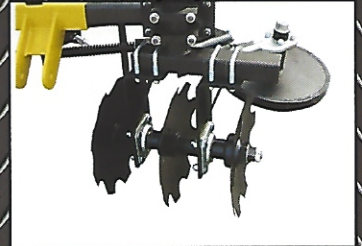
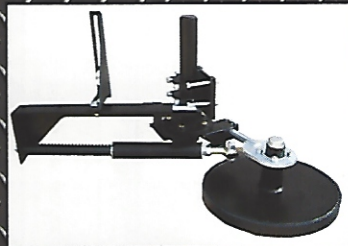


NORTHSTAR

Spin Weeder



Innovative, patented In-Row Cultivation Tool for Vineyards. Controls weeds without the use of chemicals. Tills soil and uproots weeds from first bloom to harvest!



Innovative, Rugged & Labor Saving Attachments

www.northstarattachments.com



The Next Generation of Mechanical Weed Control

Spin Weeders are an effective means of cultivation and weed control in a variety of crop applications. This unique design focuses on eliminating plant damage which is common with hydraulic blade in-row cultivators. To eliminate plant damage: the spin weeder is equipped with 18" diameter wheels which run in a counter clockwise rotation and create a soil buffer between the wheel and the plant. Additional crop protection is achieved with an adjustable spring loaded retraction system. Spin Weeders control weeds without the use of chemicals.

The Spin Weeder was developed by Dave Kohler after many years of testing in Washington State.

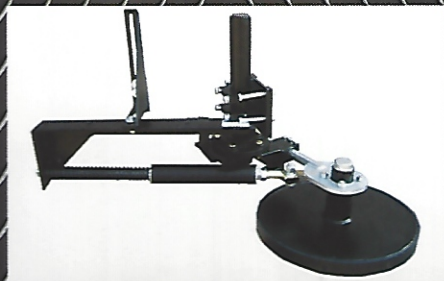


KEY FEATURES:

- New "Patented" weeding system
- Tills and weeds approximately 2" deep
- Spin weeders are ground driven by the forward travel of the tractor
- Operates effectively at tractor speeds between 4 - 7 MPH
- Weeder wheels can be angled for raised berms or flat ground
- Does not damage vines because:
 - (1) adjustable spring loaded retraction system
 - (2) weeder head spins around the vines
 - (3) tilled soil is forced between weeder head and vine base providing cushion

SPECIFICATIONS:

- 18" diameter weeder head with 1-3/4" deep flange
- Weeder head flanges are lined with 1/4" thick, long wearing, replaceable UHMW plastic
- Spin weeders are adjustable up and down, in and out
- Weeder head retraction spring is adjustable for different soil conditions
- Spin weeders have greaseable bearing hubs for long life



ADJUSTABLE SPRING LOADED
SPIN WEEDER ASSEMBLY

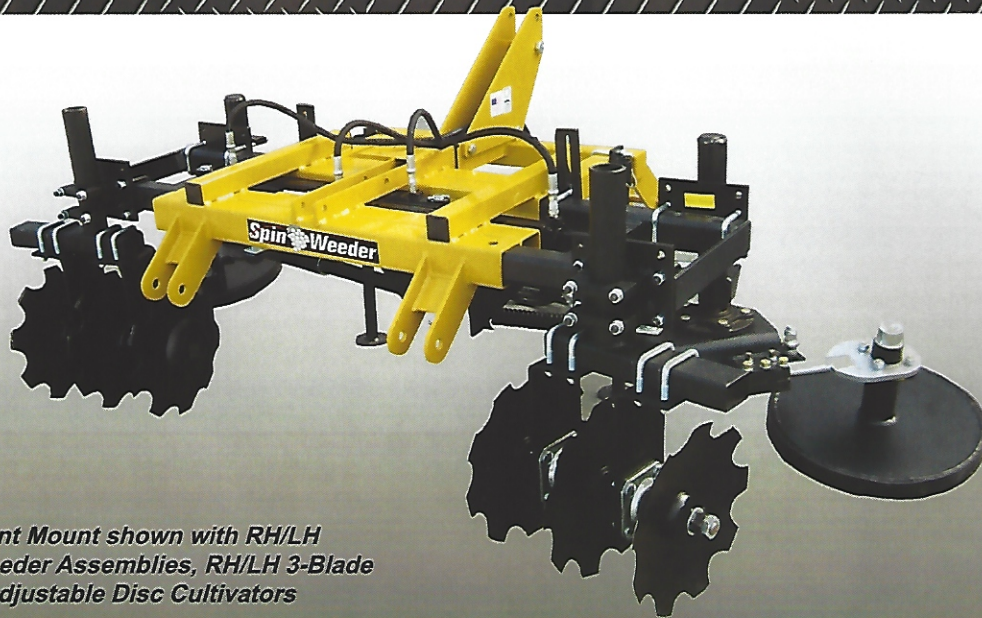


3-BLADE DISC ASSEMBLY
CULTIVATES ADDITIONAL 15"



ADJUSTABLE GAUGE WHEEL
WITH MOUNTING BRACKET

ADJUSTABLE FRAME MODEL



Front Mount shown with RH/LH Spin Weeder Assemblies, RH/LH 3-Blade Adjustable Disc Cultivators

ADJUSTABLE FRAME FEATURES:

- Front or Rear Mount 3-Point hitch
- Cat. 1, A.S.A.E. quick hitch
- Manual or hydraulic adjustable frame for various row widths
- Single or dual 2" x 18" hydraulic cylinders
- Right and left hand spin weeders
- Available with single or dual spin weeders
- Hydraulic hoses with male couplers from tractor remotes to cylinders

7' - 10' ADJUSTABLE FRAME MODELS - Frame & Spinweeder selection required to complete machine

MODELS	WORKING WIDTH	FRAME WIDTH ADJUSTMENT	WEIGHT
KW-2400	7' - 10'	Manual Pin Adjustment	400
KW-2401	7' - 10'	Single Side Hyd. - 1 remote	450
KW-2402	7' - 10'	Dual Side Hyd. - 2 remotes	500
KW-2403	7' - 10'	Dual Side Hyd. Selector Valve - 1 remote	600

9' - 12' ADJUSTABLE FRAME MODELS - Frame & Spinweeder selection required to complete machine

MODELS	WORKING WIDTH	FRAME WIDTH ADJUSTMENT	WEIGHT
KW-2500	9' - 12'	Manual Pin Adjustment	500
KW-2501	9' - 12'	Single Side Hyd. - 1 remote	550
KW-2502	9' - 12'	Dual Side Hyd. - 2 remotes	600
KW-2503	9' - 12'	Dual Side Hyd. Selector Valve - 1 remote	700

SPIN WEEDER SELECTION

MODELS	DESCRIPTION	WEIGHT
KW-1800RH	Spin Weeder Assembly, RH	137
KW-1800LH	Spin Weeder Assembly, LH	137
KW-3D	3 Blade Adjustable Disc Cultivator	85
KW-GWR	Adjustable Gauge Wheel 8" x 18.5 x 8.5 with mounting bracket, Right Hand	50
KW-GWL	Adjustable Gauge Wheel 8" x 18.5 x 8.5 with mounting bracket, Left Hand	50

Spin Weeder

QUESTIONS & ANSWERS ON SPIN WEEDERS:

Question: Do I need a tractor PTO to operate the Spin Weeder?

Answer: No, the Spin Weeder turns by the forward speed of the tractor.

Question: What horsepower tractor is required to operate the Spin Weeder?

Answer: We recommend at least a 45 horsepower tractor for dual spin weeders.

Question: What adjustments do I need to make before starting to use?

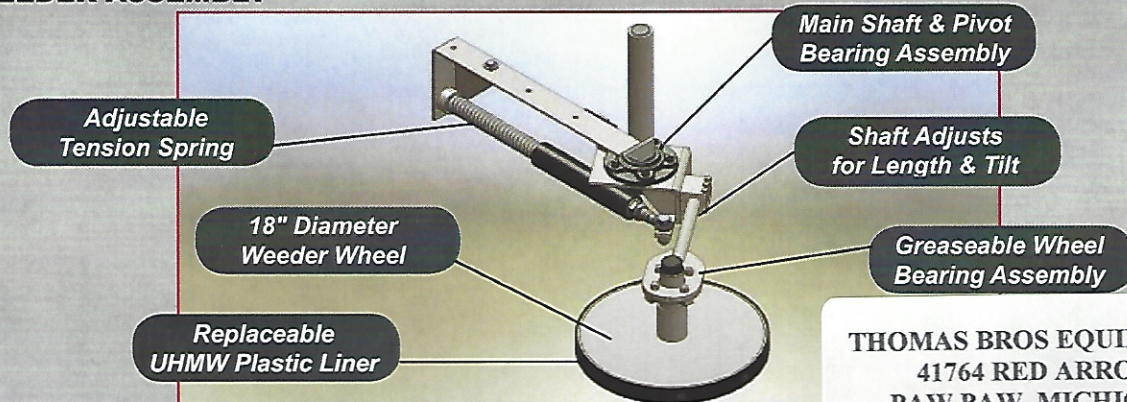
Answer: The operators manual will show the few easy steps to set for your vineyard rows. Once you have the Spin Weeder set, you may not ever have to adjust it again.

Question: I use chemicals to control berm weeds, why should I change?

Answer: We feel there are a number of reasons you should consider changing:

1. Of course, environmentally it is always best to eliminate chemicals.
2. When you consider the cost of spraying equipment and herbicides, the Spin Weeder can be more economical.
3. If there is debris as well as weeds in the berm it greatly affects herbicide spraying, but does not affect the Spin Weeder.
4. Since the Spin Weeders also till the soil, we have the advantage of aerating and drying out the soil, removing insects and destroying tunnels created by rodents.

SPIN WEEDER ASSEMBLY



THOMAS BROS EQUIPMENT SALES
41764 RED ARROW HWY.
PAW PAW, MICHIGAN 49079
Toll Free 1-866-214-6135
Fax 269-657-2110

VINEYARD AFTER BEING "SPIN WEEDED"



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