# APV TINED WEEDER PRO

## INNOVATIVE SPRING ASSEMBLY GUARANTEES OPTIMUM GROUND ADAPTATION




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**AMBITION. PASSION. VISION.**

# HOW IT WORKS

## FUNCTIONAL PRINCIPLE

When harrowing, the tines penetrate the soil to a maximum depth of 2-3 cm to break up and crumble the top soil crust. This improves soil aeration and interrupts the capillary action. The main purpose of the harrow is weed control. As the tines work the soil, weeds in the thread or cotyledon stage are buried in the soil or torn out and deposited on the surface. As a result, approximately 90% of the weed seedlings in the crop are decimated.




## TINE SPRING SYSTEM

With the tine spring system, each tine is individually suspended and has its own compression spring assembly. This allows harrowing at more sensitive crop stages. This extends the weeding window as the tine pressure can be reduced to the tine's own weight.
In addition, the tines can be lifted out completely. As the spring is located above the tine section, higher throughput is achieved without damaging the crop.



## SPECIAL FEATURES OF THE TINES

The tines on the Tined Weeder Pro are wide and pivoted to prevent lateral deflection of the tines. This results in full area cultivation. Another advantage is the choice between conventional spring steel tines and carbide coated tines. The 8 mm tines with 35 mm line spacing apply uniform tine pressure to the soil, even with different tine heights. As a result, undulations in the ground do not affect the weeding result, as the tine pressure is the same everywhere.






# MODE OF OPERATION IN DETAIL

## FEELER WHEELS

- Frame height adjustment ➞ Tine angle adjustment in relation to the ground
- The feeler wheels can be adjusted horizontally ➞ Particularly important for row crops
- With V profile as standard (R2 profile)




## FRAME

- Sturdy yet lightweight frame due to special frame design
- Double frame principle allows protected installation of spring assemblies
- The yellow frame is moved by hydraulic cylinders and a parallelogram, which increases or reduces the spring preload (see pictures on the right) ➞ This also allows the tines to be lifted.




## SPRING ASSEMBLIES

- Unique compression spring assemblies ensure long life and even tine pressure
- Spring assemblies are protected by the double frame design ➞ High throughput and crop protection

## TINES

- Pivoted in the frame
- Unique tine bending for high lateral stability
- Wear tip bent by 105° and unique line spacing (35 mm) combine optimum weeding results with low susceptibility to blockage
- Available with 60 mm carbide coating on request



# ADVANTAGES OF THE TINED WEEDER PRO

- Weight-optimised, robust frame enables operation with light tractors ➞ Minimal soil compaction
- Unique tine spring system allows weeding even at sensitive crop stages
- Sophisticated compression spring assembly guarantees uniform tine pressure over the entire spring stroke ➞ Harrowing in ridge crops is possible
- Hydraulically adjustable tine pressure with easy-to-read scale as standard equipment
- Intelligent kinematics allow tines to be lifted by adjusting tine pressure
- Ideal line spacing (35 mm) for perfect results and high throughput
- Perfect tine tracking thanks to wide tine bearings and specially shaped 8 mm harrow tines, with optional carbide coating
- Adjustable feeler wheels (horizontal and vertical)
- Rear swivelling feeler wheels (optional), can be fixed if required
- Optimised design of the VS for mounting an APV Pneumatic Seeder (PS 120 M1 – PS 500 M2)
- Wide range of accessories: carbide-tipped tines, Pneumatic Seeder attachment, front attachment for VS 150 M1 and VS 300 M1
- Tried and tested by professionals for many years
- Compact folding and retractable tines for safe road transport
- Compression springs made of UV-resistant plastic for maximum durability, embedded protected between two frames
- Large beam spacing for high throughput
- Expert advice and hands-on service
- Easy to fit with flared lower link attachment points
- Special high-precision flow dividers for hydraulic tine pressure adjustment

Here is a selection of crops in which you can use the Tined Weeder Pro on (see pictures on the right):

| | | |
|---|---|---|
| Cereals | Millet | Peanuts |
| Maize | Amaranth | Jerusalem artichoke |
| Field beans | Oil flax | Horseradish |
| Peas | Potatoes | Rice |
| Soya bean | Sugar beets | Canola |
| Lupine | Onions | Melons |
| Lentils | Lettuce | Forest plants (nursery) |
| Chickpeas | Cabbage | Herbs (lovage, mint, nettle, ...) |
| Sunflower | Celery | |
| Squash | Carrots | |
| Buckwheat | Strawberries | |

We look forward to hearing your stories! You can send them to **marketing@apv.at**.
We will send you an APV surprise package as a thank you for each contribution with photo.



| | VS 150 M1 | VS 300 M1 | VS 470 M1 | VS 600 M1 | VS 750 M1 | VS 900 M1 | VS 1200 M1 |
|---|---|---|---|---|---|---|---|
| Working width | 1.7 m | 3.2 m | 4.9 m | 6.2 m | 7.6 m | 9.2 m | 12.2 m |
| Transport dimensions in m (HxWxD) | 1.25 x 1.82 x 2.3 | 1.25 x 3.29 x 2.30 | 2.15 x 3.00 x 2.40 | 2.85 x 3.00 x 2.40 | 3.55 x 3.00 x 2.40 | 3.55 x 3.00 x 2.40 | 3.55 x 3.00 x 2.40 |
| Net weight | 250 kg | 370 kg | 810 kg | 900 kg | 1,050 kg | 1,300 kg | 1,550 kg |
| Tine length | 520 mm | | | | | | |
| Length of the straight tine tip | 110 mm | | | | | | |
| Tine diameter | 8 mm | | | | | | |
| Line spacing | 35 mm | | | | | | |
| Tines with carbide | optional (x) | | | | | | |
| Length of the carbide coating | 60 mm | | | | | | |
| Number of tines | 50 tines | 92 tines | 140 tines | 178 tines | 218 tines | 266 tines | 350 tines |
| Tine angle | 105° | | | | | | |
| Manual tine lifting | optional (x) | | | | | | |
| Frame height | 50 cm | | | | | | |
| Number of beams | 6 | | | | | | |
| Number of tine sections | 1 | 1 | 3 | 3 | 3 | 5 | 5 |
| Mounting category | CAT 2 and CAT 2N | | | | | | |
| Feeler wheels with V-profile (16.0x6.5-8") | 2 tines | 2 tines | 4 tines | 4 tines | 4 tines | 4 tines | 6 tines |
| Rear feeler wheels | optional (2 wheels) | optional (2 wheels) | optional (2 or 4 wheels) | optional (2 or 4 wheels) | optional (2 or 4 wheels) | optional (2 or 4 wheels) | optional (2 or 4 wheels) |
| Feeler wheel harrow for rear feeler wheels | optional (x) | | | | | | |
| Feeler wheels with grooved profile | optional (x) | | | | | | |
| Tractor performance | 11 kW / 15 HP | 22 kW / 30 HP | 37 kW / 50 HP | 44 kW / 60 HP | 51 kW / 70 HP | 63 kW / 85 HP | 74 kW / 100 HP |
| Control unit | One double-acting control unit is required for the central tine preloading | | | | | | |
| Folding | None | None | **One** double-acting control unit is required for folding | | | | |
| Folding system | rigid | rigid | Package folding | | | | |
| Half-side folding[1] | - | - | optional (x) | | | | |
| V-folding[1] | - | - | - | - | - | optional (x) | |
| Part-width sections | - | - | 1.93 | 1.93 | 1.93 | 1.93 / 7.55 | 1.93 / 7.55 |
| Sections with half-side folding | - | - | 1.93 / 3.40 | 1.93 / 4.03 | 1.93 / 4.74 | 1.93 / 4.74 / 7.55 / 8.36 | 1.93 / 4.74 / 7.55 / 9.83 |
| Front mounting | x | x | - | - | - | - | - |
| Mounting of the Pneumatic Seeder | optional (PS 120-300 electric, MDP) | | optional (PS 120-500 electric or hydraulic[2]) | | | | |
| Warning signs with lighting, 2 units (rear) | optional (x) | | | | | | |
| Warning signs with lighting, 4 units (front and rear) | optional (for front mounting) | | optional (x) | | | | |

[1] Additional double-acting control unit required
[2] Pressureless return and 1 additional single-acting control unit required

# ACCESSORIES

## TINES WITH CARBIDE COATING

To reduce tine wear, the VS can be fitted with tines with a brazed carbide coating. Endurance tests show that these tines wear much more slowly. This significantly extends the life of the tines before they need to be replaced. The brazed carbide tine is rounded and 60 mm long.



## WARNING SIGNS AND LIGHTING

Warning signs with LED lighting are available as accessories for the VS, with the option of warning signs and front marker lights. Stand-alone warning signs with lighting are available as accessories for the front mounting of the VS 300 M1.



## FRONT HEADSTOCK

The VS 150 M1 and VS 300 M1 can be fitted with an additional headstock for front and rear harrow operation.



## REAR FEELER WHEELS

The VS can be fitted with rear feeler wheels. A cross beam is fitted in place of the support legs. The feeler wheel brackets can be moved as required on the crossbar to adjust the track width. The rear feeler wheels can be swivelled. If necessary, the swivelling function can be adjusted with a bolt, no tools required.



## FEELER WHEELS WITH GROOVED PROFILE

Sometimes, different soil types require different tyre profiles. For this reason, it is possible to equip the Tined Weeder Pro with feeler wheels with a grooved profile.



## FEELER WHEEL HARROW FOR REAR FEELER WHEELS

The feeler wheel harrow eliminates the tracks of the rear feeler wheels.



## BRACKET FOR PNEUMATIC SEEDER OR MULTI-METERING SYSTEM

This bracket is used for mounting a Pneumatic Seeder PS 120 M1 – PS 500 M2 or a Multi-Metering System MDP 100 M1 on the VS. A suitable platform kit is available as an accessory for easy access to the seeder.



## DISPERSION PLATE INSTALLATION

When a seeder is mounted on the VS, brackets for the dispersion plates are required. The dispersion plates are positioned in front of the tine section as a standard and are fitted at the factory.



## MANUAL TINE LIFTING

With the manual tine lifting, individual tines can be lifted, for example to avoid working in rows where the crop is already taller. Either the entire harrow can be equipped or any number of tine lifts can be selected. To operate the tine lifting mechanism, the plate is simply pushed towards the tine.



## HALF-SIDE FOLDING

Half side folding allows both sides of the Tined Weeder Pro to be folded and unfolded independently from the driver's seat.



## V-FOLDING

V-folding allows the side frames to be raised quickly at the headlands. The side frames are raised by means of an additional double-acting control unit.



## PRECISION PRE-LOAD TECHNOLOGY WITH LINEAR STROKE FLOW DIVIDERS

VS 900 M1 – VS 1200 M1: The accuracy of the pre-load is optimised compared to the standard pre-load by using linear stroke flow dividers. This precision pre-load technology can be ordered ex works.



# BASIC RULES FOR WEEDING

## OBJECTIVES

- Control of seed-propagated weeds at the thread or cotyledon stage over the entire area
- For row crops: row weed control
- Producing a crumbly soil surface, breaking crusts (improving the water and air balance)
- Protect crops as much as possible



## BEFORE WEEDING

- Effectively remove root weeds (e.g. thistle, couch grass) before seeding
- A crumbly seedbed and good soil structure make weeding much easier!
- Precise seeding technology and deeper seed placement are beneficial
- Increase the seed rate by 5 – 10%
- Watch out for frost! No (night) frost 2 days after weeding
- Carry out weeding from midday to evening ➞ Best crop tolerance



## HOW THE HARROW WORKS

- When set correctly, the harrow will penetrate the soil about 2-3 cm
- When harrowing, most of the weeds are buried and only a small part is torn up.
- Tine tips at right angles to the ground: optimum burying effect, optimum control
- Working speed often has a major effect on crop tolerance
- Large line spacing reduces susceptibility to blockage without affecting the weeding effect.
- Nutrients are released into the soil with each harrow pass ➞ Harrowing promotes plant growth.



The crop is usually firmly rooted

## WHAT TO DO

- Choose the optimum time and work efficiently: a missed harrow pass cannot be compensated for!
- Weed only in dry conditions
- If possible, weed before the crop emerges (blind harrowing)
- If necessary, weed several times at very short intervals to control weeds before emergence
- Adapt the tine position and tine pressure to the crop and conditions
- Start slowly and increase the speed to the optimum



Pay attention to the plant stage



# TIPS FOR CORRECT SETTING OF THE TINED WEEDER PRO

**3 basic settings** in order of priority:

## 1. Feeler wheel height

To adjust the angle between the tines and the ground. 90-100° is ideal [Fig. 1]
The harrow should run parallel to the ground during operation.
Always lower the lower links until the feeler wheels touch the ground.

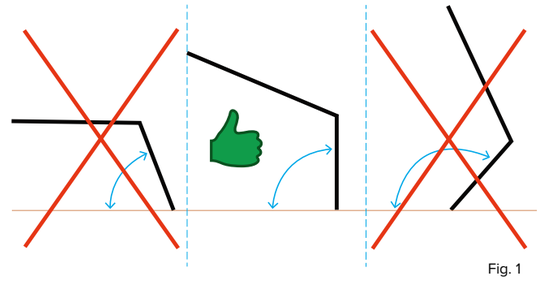


Fig. 1

## 2. Hydraulic tine pre-tension

When it is below 0, the tines work with their own weight (the tines are lifted at -3) and from 0 to 6, the tines are loaded with the spring and pre-tensioned [Fig. 2]




Fig. 2

## 3. Forward speed

The higher the speed, the more intensively the Tined Weeder Pro cultivates the soil
To achieve the optimum setting, we recommend that you select the basic setting and speed based on experience, drive 30 m and then evaluate the control success and crop tolerance and adjust settings 1.-3. accordingly.
It is important to change only ONE parameter to see the effect.
Weed control is achieved at a speed of 1-2 km/h, which can be increased to 12 km/h depending on the sensitivity of the crop.

**As we all know, practice makes perfect and the same goes for weeding!**

The best weed control is achieved when the weeds are at the thread stage.

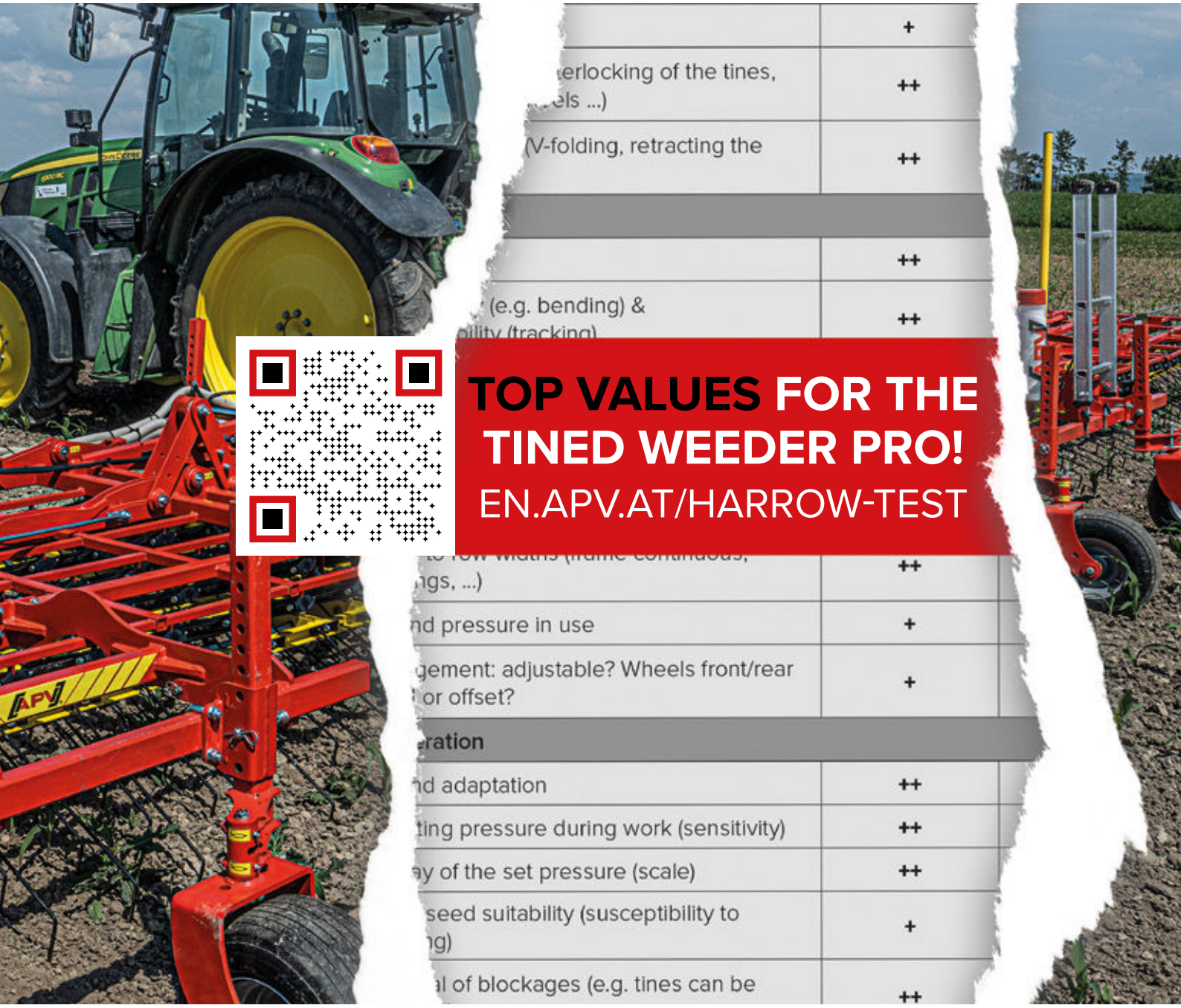


Fig. 3

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