

Double or single, front or rear

Everything you need to know about harrow tines

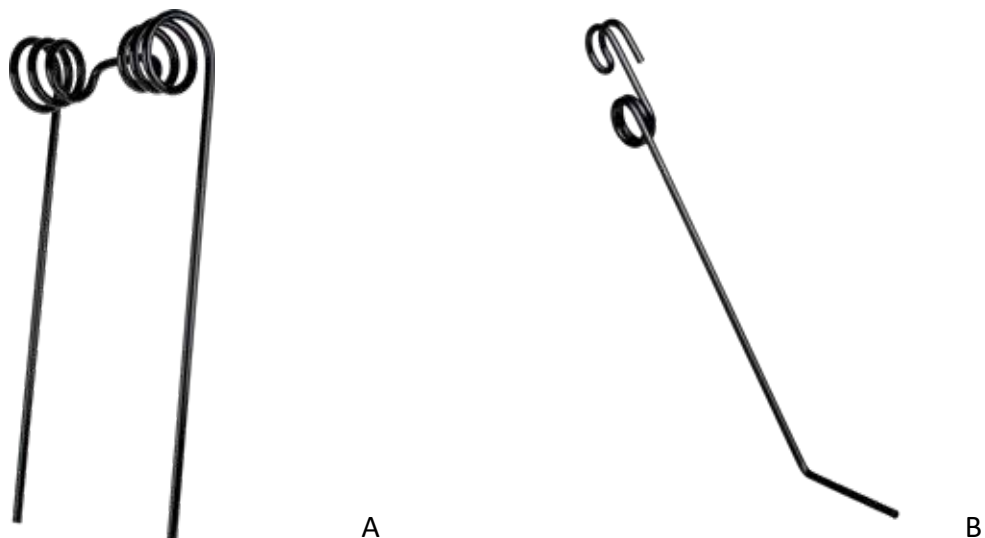
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Nowadays, it is impossible to imagine the world of agricultural machinery without harrows. Whether they're used for organic weed control, tillage or sowing, harrow tines can be found everywhere. Though, as easy as they may seem to use, there are a few basic rules to bear in mind to ensure they do their job properly.

First of all, there is a wide range of different models and designs available. Some harrows have multiple coils, while other models have none at all. The coils can also be placed above or below. Some are close together, others flared out. Some have straight ends, others are cranked, angled or lay flat to the ground. As diverse as each manufacturer's tine shapes may be, however, some aspects apply across the board. So, if you're looking for a harrow to put on a new machine or want to convert an existing implement, it's worth considering which type of tine is right for the job.

Let's start with the basics. Harrow tines are always "trailed". That means they always trail out at an angle towards the rear. The spring rate of the harrow depends on a few factors. First and foremost is the material thickness. The thicker the spring wire, the more stable but less flexible the harrow. Straw harrows are a good example of this. They often have a diameter of 12–16 mm. They are also generally designed as a double tine harrow. This means there are always two ends joined together by the same fixture. In this case, the harrow has to keep the pressure up as it is pulled through the soil in order to distribute the chopped straw and tear up the soil. (A)

The second criterion is the lever length behind the coils, or behind the attachment point on a harrow without coils. A rule of thumb applies here: the longer the lever, the more the harrow bounces. This can be an advantage, especially with more delicate crops. (B)



The harrows that are used in row crop cultivators tend to be made out of a thin material and have longer levers. Their job is to spread out the crop residues found on the soil surface and redistribute the soil that is thrown up. Not as much pressure is needed here. Therefore, on a precision tined weeder used to control weeds, it also makes sense not to work with harrow tines that are too short. The pressure may often be adjustable, but if the lever is too short, at some point the crop will become damaged regardless of how light a setting the machine is on. It also reduces the clearance and the machine gets blocked up quicker.

The number of coils also plays a role, of course. The greater the number of coils, the more flexible the harrow is to work with. This is also where the biggest error creeps in during installation. Some tines are for front-mounting, while others are for rear-mounting. It is crucial to look for the right harrow for your preferred positioning. There is in fact just one basic rule for this: the coils must contract during operation. Otherwise, the harrow may bend or break. This is why various models are available to suit different installation scenarios. In principle, however, any harrow can be used at the front or the rear. It just needs to be mounted in the right direction. Sometimes, the design of the machine or the available space can rule out the use of certain types.

Below is a summary of the designs and working directions.

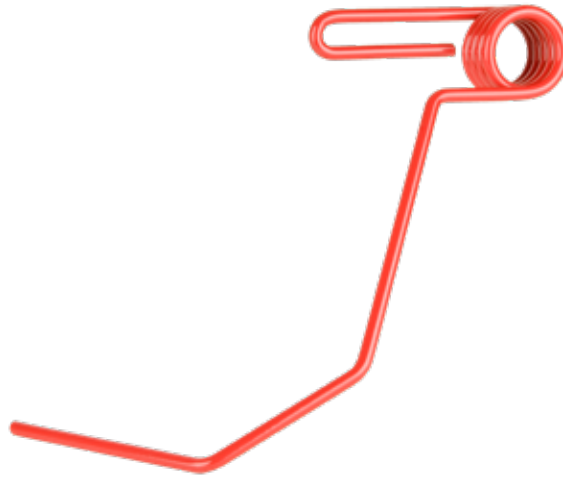
Harrow #1 is generally intended for use in a rear-mounted position. It has a coil that sits on top and is installed in the direction of travel using the fixture. This enables the tip to be pulled towards the rear while the coil contracts.

Harrow #2 is primarily designed for use on a front-mounted implement that does not have enough space for installation behind the boom. The fixture points backwards and the coil is situated below the fixture.

Harrow #3 is a levelling harrow. It has a flattened end that is intended to smooth out and distribute the soil. This one also tends to be mounted at the rear.

Harrow #4 is the exact opposite. It fulfils the same purpose but is mounted at the front.





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If the tine is intended to work very intensively, a harrow tine such as #5 is used. Its ends point straight down, enabling it to tear through the soil quite hard and even pull out well-developed plants. Some models also have angled ends that point at a slight angle towards the front. However, caution is the top priority here, otherwise the crop itself can also become damaged. As you can also see on this tine, there are no actual coils.



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And finally, a practical example. Large straw harrows are becoming ever more popular for stubble cultivation. By mounting an attachment at the end of the harrow tine underneath, you can increase the effectiveness of the implement, so that often no additional passes are necessary, for example with a cultivator, to facilitate the germination of volunteer cereals. What's more, harrows have a lower pull power requirement and a faster working speed than cultivators.

Harrow tines are a versatile, humble piece of equipment. The growing sales figures within the conventional agriculture sector alone are testament to this. Many farms are looking around for alternatives to using total herbicides, and harrows are likely to take up a hefty share of this segment.



Harrow Scratch

