

THE LEADING EDGE

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A PUBLICATION DEDICATED TO MAXIMIZING YIELD POTENTIAL

8 Step User Guide to Successful Strip-till Operation

It has been said the average farmer has 50 spring planting seasons and 50 harvests in a farming career to master farming practices. No two seasons are ever identical, perhaps this helps to explain the wide performance variation of soil engaging implements used in strip-till.



From tougher-than-nails soil in the fall to garden-variety soils in the spring, this wide of a variation requires different settings and options for successful operation. Without the willingness to adapt to conditions at the time, your satisfaction with the performance may be less than you desire. Strip-till is normally implemented when a change in farming operation practices are being made, so if you intend on being successful a change in the way you think is also required. As you read further into this guide it will become more evident there is not a "one size fits all for all seasons".

STEP 1 - COMBINE ATTACHMENTS

Plans for success START AT HARVEST. It is critical that the combine be equipped with a spreader that will distribute residue evenly across the full width of the header.

A chopper to size heavier, tougher residue is also needed. The spreader catches the fine chaff that is expelled by the combine and spreads it evenly to prevent a mat-like build up or bunching in the center of the combine. Properly sized residue reduces the workload of the residue manager wheels, which create a residue free zone in front of the cutting coulter and knife.

STEP 2 - CUTTING COULTER BLADE

Equally as important as combine attachments, proper blade selection for the cutting coulter is the foundation that the successful operation of strip-till equipment is built on. Regardless of style, make or design, a coulter blade needs a firm soil profile

to cut against for complete severing of surface residue. Incomplete severing of soil surface residue can result in residue buildup around the knife and can eventually lead to complete plugging. This condition can be avoided or greatly reduced by utilizing a cutting coultter blade that is capable of penetrating the soil to a depth where adequate, firm soil is present. The following example demonstrates the importance of firm soils. As an experiment, use a sharp instrument and see how easy it is to sever a 1/4 " nylon cord upon the top of a frozen stick of butter. Now let the butter thaw and again attempt the experiment. There should be a big difference. This is actually how coultter blades work. This is why a cutting coultter blade performs better in some conditions than others and this explains notable performance differences from one year to the next. The operator has to be willing to change the cutting coultter blade to the best match for conditions at the time.

STEP 3 - RESIDUE MANAGEMENT

Once the residue is distributed on the soil surface it has to be managed. Fingered residue managers have their limitations and are not miracle tools. Their use is limited to certain types of residue, primarily in a crop rotation practice. Continuous cropping practices, especially the desire to run down the "old row", requires more aggressive residue managing options such as discs or flat wheels with sharp cutting edges. Here is where the "rethinking" process needs to be utilized. If the soil conditions are such that the cutting coultter cannot completely sever the residue then it has to be aggressively removed. The fingered residue manager wheels may not be aggressive enough. For most operations when the soil profile is firm the fingered residue manager wheels can be used, however in soft conditions the discs with a cutting edge will be the right option.

We recommend farming operations with both rotational and continuous cropping practices to purchase both the fingered residue manager wheels and sharpened discs and interchange when necessary.



STEP 4 - KNIFE SELECTION

Selecting the correct knife for a given application is determined by the following factors; amount of required or acceptable soil disturbance, depth of operation, type of fertilizer being applied, ground speed, time of year application will occur.

(Keep in mind all knives, regardless of design, are both operational depth and ground speed sensitive.) In other words, the wider the knife the deeper it penetrates and the faster it moves through the soil the more soil disruption. Located throughout North America are knife manufacturers and distributors capable of supplying the right knife for most applications.

STEP 5 - SEALING AND CLOSING OPTIONS

A wide variety of sealing options are available to seal in the fertilizer or to simply close the trench made by the knife. The most popular option is disc sealers, which can be ordered with various blade configurations. The BEST method of choosing the right blade is to first clearly define what the sealer needs to accomplish. Such things as build a 4" berm, seal the knife slot while leaving the soil slightly elevated, or catch and roll soil back into place. Once the role the sealers will play is determined, the blade selection process can continue using the following guidelines. Disc sealer blades are ground speed sensitive, to achieve the required sealing adequate ground speed must be maintained. A key element in maintaining ground speed is properly matching available horsepower to applicator draft. Berm height and width is influenced by the following factors: ground speed, type of knife being used, direction of the blade concavity and the distance between the blades. The disc sealer blade concavity positioned towards the direction of travel results in the maximum soil movement. This position provides the best mounding of the soil for higher berms. Disc sealer blade concavity in an inverted "V" position (towards the direction of travel) results in minimum soil movement. This position is best suited for rolling the loose soil disrupted by the knife back over the knife trench for sealing while leaving more residue intact on the soil surface of the berm.

Notched disc sealer blades are very aggressive and ideal for heavy residue applications.

Smooth disc sealer blades can be used in all applications and are best suited for minimal soil movement. Sealing wheels are another option to seal the knife trench (slot). Two wheels running parallel and slightly angled at the top away from each other results in an inverted "V" at the bottom to press the soil back down as they rollover the soil disturbed by the knife. Sealing wheels are limited to sealing only and are not intended to build a berm or move soil nor should they be used with maximum soil disrupting knives.

STEP 6 - DEPTH CONTROL OPTION

When more precise fertilizer placement is a goal, depth control is the right option.

STEP 7 – FERTILIZER PLACEMENT

Always consult your fertilizer supplier for placement recommendations. EXTREME care should be paid to avoid seed burn or crop damage caused by improperly placed fertilizer. In particular, spring application runs the highest risk for damage if sufficient space is not maintained between the seed and band of fertilizer. The duration of time between application and planting is also critical.



STEP 8 – MISCELLANEOUS

Strip-till units used in terraced application should be equipped with a swivel assembly to follow the contours of the terrace. If a planter is equipped with a seed firming device and seed will be placed on the loosened soil created by spring strip-till, we strongly urge frequent visual inspection to make sure the seed is not being pressed too deep at the bottom of the furrow.

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