RETHINKING SOWING TECHNOLOGY

The cultivation of catch crops is an important measure for maintaining and promoting soil fertility. High labour peaks and a limited sowing time window often lead to compromises in sowing technique. Therefore, the result suffers. Precise drill sowing can consume too much time, energy and valuable water. It is important to combine resource conservation and crop establishment.

Only well-established catch crops can optimally fulfil their functions. It has proven successful to treat the catch crop like a main crop. In times of climate change, energy crisis and agricultural restrictions, however, crop cultivation methods must be rethought. Conservation of soil resources has never been more important. Consequently, the „classic“ drill sowing after the plough is often no longer an option. The question now is: How can I provide the cover crop with optimal growing conditions and at the same time conserve resources? Various methods and their advantages and disadvantages are described below.

Drill seeding after ploughing

Turning tillage works in previous crop residues deeply. This is an advantage, because it provides the catch crop with a clean seedbed in which the optimum placement depth can be achieved. However, tillage alone results in high labour peaks and energy costs. In addition, turning the soil disturbs soil life and damages the soil structure. There is also the possibility of ploughsoil compaction and, in late summer drought, the risk of the area drying out. The risk of erosion prior to the emergence of the catch crop should also not be neglected.

Mulch and stubble seeding with drill seeding technology

The shallow to deep, non-turning tillage creates the seedbed for mulch sowing. The seed is placed in the soil surface mixed with plant residues. This method reduces the drying out of the soil surface due to the mulch layer. In addition, the area output is higher. Depending on the weed management, one to several tillage steps must be carried out before cover crop sowing. In post-harvest weed management, two-stage shallow tillage before sowing has proved successful. A stubble fall of two to three centimetres interrupts the capillarity of the soil and allows remaining seeds to germinate. A second, slightly deeper pass is made after the emergence of previous crops and weeds to reduce them. Even straw distribution ensures successful placement of large-grain seed and good establishment of mixtures.

Cultivator seed

To save one working pass, the catch crop can be spread with the aid of a pneumatic spreader mounted on a cultivator or disc harrow. The seed is distributed over a wide area via aggregates or hoses in front of or in the packer roller. This method has become established on many farms, as stubble cultivation and sowing can be combined. One main result is a long vegetation period for the cover crop and immediate erosion protection. A prerequisite for optimum field emergence is the even distribution of straw and plant residues. A disadvantage: With cultivator seeding, it is not possible to achieve a uniform placement depth in mixtures and possibly not sufficient soil contact. Large grain seed may be placed too shallowly.

Drill seeding with no-till technology

Using the drill without prior soil cultivation reduces working hours and allows the catch crop a longer vegetation period. Erosion protection and minimised soil disturbance also speak in favour of direct sowing. To achieve the correct placement depth in the rooted soil, the following can be done. For example, a tine sowing or disc coulter tech-

A pneumatic spreader on the soil tillage implement allows two operations to be combined.

nique can be used. This sowing method has advantages, especially in the management of the emergent grain. Depending on the location, however, mice and snowflies may infest the area.

Combined sowing

Mounting a seeder on the harvester can reduce additional passes and reduce the amount of work. This combine sowing allows the catch crop a longer vegetation period. A direct seeding device or a broadcasting seed tank on the harvesting machine is suitable for technical implementation. The latter is cheaper to implement, but only spreads the seed on the stubble.

Drone seeding

With a drone, the catch crop can be sown before the main crop harvest. This makes the growing season of the catch crop even longer. In addition, the procedure reduces the number of passes over the area. This prevents damage to the soil structure. Several positive experiences have already been made with drone seeding using a TerraLife® mixture. Here, the seed is merely scattered as well. The dying plant mass of the main crop provides shade. However, there are also critical points, such as a lack of soil closure and strong dependencies on the microclimate, e.g. germination by morning dew.

Conclusion

The choice of sowing method must always take into account the technical feasibility due to the farm structure and the soil or the condition of the land. Overall, however, methods have proven successful that allow the catch crop a long vegetation period and lush growth. In times of limited resources, the protection of the soil must be one main priority, as it forms the basis for plant growth.

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The use of the drill in a mulch bed provides preliminary protection of the soil surface against erosion and drying out.