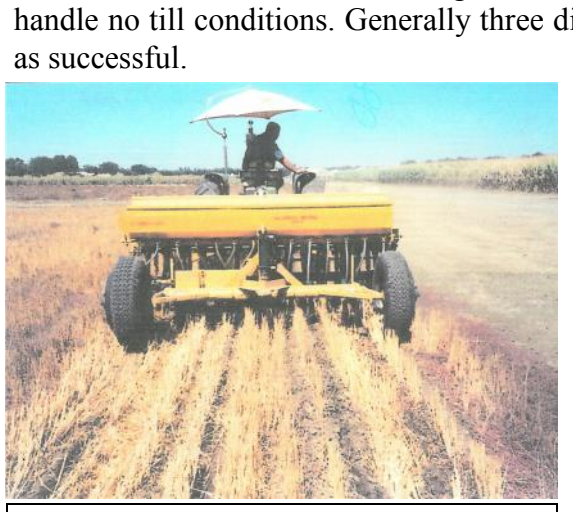
No Till and Minimum Till Planting

Whatever your crops the best policy is to till no more than is actually necessary not just following common practices. Direct seeding into uncultivated ground saves soil, saves fuel and minimizes costs of input while producing healthier soils, crops and profits. Adopting a no till system for the longer term does not always mean never-till, although in some soils it might. The system requires close observation not blind obedience to past practices or formula

Soils with shallow hardpans or work pans created by destructive past tillage practices should be spaded as deeply as needed to destroy pans. Once this is done the choices of cover crops, rotations of field crops, pasture crops and continual no-till drilling and residue mowing can eliminate tillage for years to come. The elimination of annual tillage greatly reduces costs, all but eliminates erosion, maintains soil tilth while improving fertility.

Some highly desirable pasture plants are very slow to establish, interseeding/over seeding with compatible but faster growing plants can keep production of useful crops continuous and economic. Even well established pastures benefit from continual introduction of additional plant species to improve the livestock's diets and well being.

The no till drill is specially designed to work in crop trash, grain stubble, and established sod in dry hard ground. To tolerate the stress it must be more rigid than conventional drills used in annually tilled fields. Thus a no till drill could work in tilled ground, but a conventional drill cannot handle no till conditions. Generally three different designs have emerged as successful.



California No-Till Drill

The "California No-till" built here in Northern California, has evolved from work by USDA agricultural research stations. Its frame is made large square tubular steel members and its seed box of welded steel plate, the opener is a coulter followed by a knife opener to put seed in soil. The Coulter cuts trash and opens furrow 1/2 inch deeper than knife can place seed 1/2 to 1 inch deep. The hydraulically controlled bogey wheels at rear give precise control of planting depth. Multiple seed boxes can meter seeds of greatly varied seed sizes and types to be planted in a single pass. Even fertilizer can also be administered at the same time. Because no till planting is done into dry ground and in a single pass you do not contribute to soil compaction. These units are built in 6, 8 and 10 foot models and cost $2,000 per foot of width.

Main frame Construction

Seed box assembly

The second type of no till unit comes from Italy. The manufacturer ACMA calls their openers "trailing anchor coulters". They are much like a chisel plow in appearance and each is equipped with a strong coil spring so that each opener can operate independent of those adjacent to it so it can ride over rocks or other obstacles while penetrating hard dry untilled ground. The openers are mounted in three ranks and staggered front to rear so that trash is not raked and can pass through. Adjustable seed meters allow large or small seeds to be planted and an optional fertilizer box can be added. A hydraulic cylinder controls depth and it can be 3 pt mounted or drawn. It is made in 7.5 ft, 8.5 ft. and 10 ft. models. Prices $9,000;

For smaller scale work a California manufacturer builds a very good "Vineyard Drill" with double disc openers and individual packer wheels. It comes in 3, 4, 5, and 6 ft. versions designed for planting cover crop mixes in centers between vine rows and orchards. Its frame is impressively rigid and it can be ordered with optional front mounted discs that open hard ground to allow lighter disc openers to penetrate to place seed at correct depth.

For still smaller, lower power tractors one can apply the minimum till approach by doing alternate strips using Acma's end wheel drive drill as narrow as four feet, after PTO driven minimal tillage.

One of the important savings realized by Low or no-till systems is the reduction of power needed for land preparation and planting. You will find different fields and crops will benefit from interseeding, over seeding and other no-till functions at different times and hence smaller blocks do not require high horsepower tractors. Again because no -till is done into dry ground windows of opportunity for planting give time for lower horsepower tractors to get the job done at lower cost while benefiting the environment.

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