

# WHERE TO BEGIN WITH MACHINERY FOR HORTICULTURE

You're starting out to grow organic vegetables. Just got your land organised – there are many decisions to be made not least what are you going to grow and how big you are planning to get? Will you do everything by hand or get some machines to help? What do you need?

by Norman Kenny from Nurney Farm  
one of the farms participating in MOPS

## Starting with the basics

There are some basic requirements. First a tractor of some sort, a transport box will be very handy as it saves having to push a wheelbarrow everywhere. Next, I would suggest a grubber/spring tine harrow to prepare the ground for planting and it can also be used for weeding. What size tractor do you need? I would suggest something around 45-65 horsepower. This size tractor is easily manoeuvrable and will do just about everything you need it to do. A basic 2-wheel drive is good enough however I would recommend a 4-wheel drive if possible. Vegetables, especially root ones

are harvested during winter months when ground conditions are not ideal and particularly if your ground is hilly. Another extra would be a creeper gear to make it go very slowly. This can come in very useful when transplanting with machines (when you expand!) and we use ours a lot for weeding with what we call a lay flat weeder. This is a piece of kit (don't know if you would call it a machine!) with platforms on it that the hand weeding team lie on while weeding, and the tractor pulls it slowly along. Back to the tractor – the more common makes are harder to get with this creeper gearbox and some of the common makes of any age can be expensive as vintage collectors are also



looking for them. You need to look at some of the Japanese or eastern European ones to get value for money and extras like 4-wheel drive and creep gearbox. I would also suggest buying from a machinery dealer not too far away especially if you are not too mechanically minded, and you might need some back up servicing or repairs down the road.

When you get your tractor, the next thing is to decide what is your row spacing or bed width for your vegetables and get the wheel width adjusted accordingly. We work with a wheel track spacing of 1.7m from centre of wheel to wheel. This gives us a 1.2m wide bed or 2 drills (potatoes) 80cm apart. It is not possible to get the correct spacing for every crop, so compromise is needed.



Goose Foot Hoe



Grubber with depth wheels

Transport boxes do not come second hand! They are a very unloved tool and get a lot of abuse and usually end their days with their original owner. My advice is to buy a new one, they are not that expensive around €500. When buying one keep in mind that the standard vegetable box is 60cm x 40cm so get a transport box that fits 3 or 4 boxes across tightly, so that they can't fall over.

## Ground preparation and maintenance

A grubber or spring tine harrow is an ideal all-round tool. It is sometimes called a Triple K. Prices range from €600 to €800. It is used for tilling the ground before sowing and can then be used for weed control in vegetable rows. The tines will need to be adjusted for this. So, when you get your grubber – reasonably easy to get second-hand – you need to free up or replace the bolts for adjusting the tines. Make sure all the bolts are the same size. There is nothing worse than trying to adjust the tines when the nuts and bolts are all different sizes. A useful addition to any grubber are wheels on it, to control the depth. If you go into ploughed ground with a grubber set too deep it brings up a lot of clods that make weeding difficult down the road. If you need to till deep, start with the first run shallow and go a bit deeper with each subsequent run and if possible, do each run at a right angle to the previous one. Next on the list and cheap enough to get second-hand is a ridger – essential if you are going to grow potatoes. Used alternately with the grubber it is good at weed control in ridged crops.

## Weed control

Now we come to weeding machines. I cannot emphasise enough that all machines for weeding work best with weeds at cotyledon stage and frequent runs through the crop. Most crops respond well to the soil being cultivated around them.

If you are not going to grow on ridges but on beds the next piece of equipment is some sort of steerage hoe. This machine has legs with goose foot blades that can be adjusted to run close to the crop rows and has a steering system and hopefully a seat for the operator! It takes 2 people to operate – one on the tractor and one on the machine steering. The reason for this is that it is nearly impossible to steer the tractor accurately enough and it needs the person steering the machine to get close enough to the rows of plants. A useful tip here is to use the same 2 people do the same job each time you go through the crop. The first time through the crop make note of the direction you travel on each bed and the next time go the opposite way. Do this each time you weed the crop. The reason is that the person steering the hoe always has an unconscious tendency to keep slightly to the left or right and advantage can be taken of this to get closer to the rows.

## Planting crops

Next on the list is a transplanter. These machines vary in complexity from just putting the plant in the ground and firming it in, to machines that can make a hole in plastic mulch and putting in the plant. In my experience they are hard enough to come across. Some work with bare root transplants only and some with plugs only and few will work with both. We use all plugs here except for leeks that are bareroot. Plugs also mean the expense of trays and the time to sow them. For best results it's 1 seed per plug whereas bare root is a dribble of seed in a row, that will need weeding. For sowing root crops in the field, a precision seeder is needed. These machines can sow single seeds at precise spacing eg. 1 carrot seed every 2cm and they are possibly a bit easier to source

than a transplanter. Bear in mind that most of them require extra discs or belts for each type of seed sown, and also graded seed is a must for them. Sowing directly in the field can be a challenge weed wise, which leads me on to the next item.

A flame weeder is very important for precision seeding in the fields. The ground is prepared and left for a week to ten days and then given a run of a flame weeder to burn off weeds before sowing. A second burn can be managed after sowing before the crop emerges. Sow some of your seed in a tray and put them in the poly tunnel, they will germinate a day or two before the field seeds, letting you know when to burn. Burning does not work on perennial weeds or on weeds that have gone much beyond the cotyledon stage eg. a charlock plant with 2 true leaves has a root system almost 10cm deep and can recover from flaming.

Finally – I am always curious what other growers are up to on their farm. At the time of writing this just after mid-October, we are removing all the summer crops (although the cucumbers keep going) from the tunnels and glasshouse and planting up with salads and our spring kale crops. Nice handy work inside with all the rain we are currently getting. These plants were sown in trays at the beginning of September. Outside its harvesting carrots, parsnips, red & white cabbage and the last of the salads. Even though conditions are mucky we are harvesting our potatoes at every opportunity. Normally we would have them all harvested by now and in the cold store. Before we do that we will grade out the seed size potatoes to store separately for next year. With potential restrictions on importing organic from the UK, seed could be difficult to get.

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