

## Broadcast Sowing Method

This method can be used when sowing larger quantities of seed onto larger sites. It has been trialled at several locations, but may not be appropriate everywhere. The aim of the method is to get an even distribution of seed across the entire sowing area, and record the important information required at each site.

### What you will need

- Seed – beforehand you should have worked out how many seeds to sow per metre square. The recommended rate is 100 seeds per square metre expecting a germination rate of around 5%.
- Scales and small pots – used for portioning out seed (if required).
- Lime-free sand – the sand needs to be dry enough that it does not clump together, but damp enough that it does not fly away in the wind. A 20 kg bag of sand will cover an approximate area of 200-250 square metres (20000-25000 seeds), but this depends on the hand size of the person spreading the seed and the dampness of the sand. Lime-free sand can often be purchased at garden centres and may be called ‘Horticultural Sand’ or for species with very small seeds look for ‘Kiln Dried Patio Sand’. Check the label as some brands can contain weed inhibitors which will stop the seed of arable plants from germinating.
- Buckets / trugs – to mix the sand and seed together. These need to be large as a handful of sand and seed is used to sow each square metre.
- Stakes – to mark the corners of the plot. Additional stakes can be used to mark interim lengths.
- Measuring tape(s) – to mark out plots.
- 1x1 m quadrats – to help with sowing each square metre.
- Soil bags, soil auger or trowel, and permanent marker pen – to take a soil sample. A soil sample should be taken from plots in separate fields, or if more than one plot is within the same field and there are clear differences between the plots.
- Camera/phone camera – to take photos for writing-up.
- GPS or other location device (such as smart phone) – to take grid references from the corners of each plot.

### Weather conditions for sowing

Ideally, seed should only be sown when the weather is dry, with little or no wind. It takes approximately 2-3 hours to sow 100 square metres including setting-out the plot and tidying away afterwards.

If the weather is wet, the sand and seed will get too damp making an even sowing more difficult. Delaying the sowing may result in a better spread of seeds rather than sowing in adverse conditions. In addition, if sowing on a slope heavy rainfall may wash the sand and seed downwards.

If the weather is windy there is the possibility that the sand will be blown off the quadrat. To prevent this from happening the sand will need to be slightly damp and in very windy conditions seed should be spread as close to the ground as possible.

### Pre-preparation

Preferably, horticultural lime-free silver sand should be used, but if this is not available horticultural sand that is lime-free can be used. This has slightly more grit as silver sand is finer. Sand is often kept outside at garden centres, and will need to be purchased in advance and dried as much as possible. Make sure that it's brought inside and/or laid out in the sun on tarpaulins or old dust cloths to dry. If it's an emergency, sand can be dried using driers or even a hair dryer! It's best to put the sand back into the original bags for transport to site.

### How to sow a plot

This first part of the sowing could be undertaken indoors out of the wind.

**1. Portion out the sand into the buckets/trugs for each plot or person sowing seed.** Divide the number of seeds by 100 and this is the number of handfuls of sand that is required for the sowing. Thus, 100 handfuls of sand are required for 10000 seeds which are being spread in a 1x100 m margin. If 10000 seeds are being spread in a 2x50 m margin, it would be worthwhile splitting the sand into two buckets/trugs with 50 handfuls of sand in each bucket/trug and splitting the seeds with 5000 in each container. A cup or similar sized container can also be used for portioning out the sand.



Portioning sand © Hannah Gibbons

**2. Check the dampness of the sand.** Hopefully the sand is not too damp. If you squeeze the sand in your hand and it stays in shape it is too wet and needs to be dried (if you can make sand castles it is far too wet!) However, sand that is too dry is also a problem as it's likely to be blown away in the wind. In this case, add a little water to make the sand moist and give it more weight. This does mean that the 'handfuls' are likely to be larger as it is easier to pick-up damp sand than dry sand. You may need to add a little more sand to compensate for the larger handfuls that are likely to be spread or remember to take slightly smaller handfuls when sowing. Water should be added to get the required dampness before seed is added.



Dividing the sand into containers © Cath Shellswell

**3. Add the seed.** Be careful opening the seed packet as there may be seeds stuck at the top and bottom. If the seeds are in a foil vacuum packet they can have quite a lot of static and attach themselves to the size of the packet or small container that may be used to portion out the seed further. The correct amount of seed should be added to each bucket/trug for the desired area. This

might need to be weighed out if the seed has not already been portioned. It is also useful to split the seed between different buckets/trugs to lighten the load (20 kg of sand is quite heavy) or if there are several sowers.



Portioning the seed © Cath Shellswell



Opening and mixing the seed into the sand © Hannah Gibbons



Marking out the corner of the plots © Cath Shellswell



Sowing a margin © Hannah Gibbons



Sowing a square plot © Cath Shellswell

**4. Mix the sand and seed very well.** Use a metal trowel or spoon rather than hands or a wooden spoon to mix, as damp sand and seed is less likely to stick to these implements.

The next part of the sowing takes place outside at the sowing plots

**5. Mark out the plot and record the corners of the plot.** Use stakes or canes to mark out the corners of the plot. This can be done by pacing the plot initially or tape measures can be used to be more precise. If the plot is long and thin, you may want to put in additional 'marker' stakes along the length. Take grid references at each corner of the plot and locate the plot by pacing from other markers, such as trees or corner fence posts, if this is possible.

**6. Take a soil sample (if required).** If the soil characteristics, pH and nutrient levels (phosphate, magnesium, potassium and calcium) are not already known then it is useful to test these to see if they are within the range that the species is known to occur. Soil samples should be taken from each plot (if required). See separate guidance on How to take a soil test.

**7. Place the quadrats at one end of the plot and spread a handful of sand and seed across the quadrat.** The 1x1 m quadrat is useful as a guide to show the area for spreading sand and seed. Try and spread the sand and seed evenly across the quadrat. This can be a little difficult if it is windy or the sand is too wet.

**8. Flip the quadrat over onto the next square metre to be sown.** Continue in this fashion until reaching the end of the sowing plot which is also hopefully

close to the corner post that you staked. If the corner stake is further away, a grid reference should be taken from the actual corner. It is not necessary to use quadrats throughout and marker canes could be used, but quadrats can be easier to help visualise the area to cover.

**9. Roll or trample the seed onto the soil.** This may be done by the farmer as part of their normal operations, or may need to be done in addition. Heavy rain will also wash the seed onto the soil, but can wash it downhill on sloping sites.



Rolling a strip field © Hannah Gibbons

**Follow-up after the sowing**

There are a number of things to consider after the sowing.

- 11. Send off the soil sample for analysis (if taken).
- 12. Write-up the reintroduction using photos so that there is a record of what and how you've done the sowing and map out the plot(s) using the GPS coordinates. Keep records of any extreme weather events, pests, weed problems etc. as part of the ongoing site record of management.
- 13. The following year, carry out a summer population survey to monitor the flowering plants.