Getting started with dung beetle releases on your farm

There are some simple pre-requisites needed before you seed your farm with a starter colony of dung beetles. These are listed below and should be considered before releasing dung beetles.

Please note dung beetles are for all livestock farms types (i.e., beef, dairy, sheep, deer, alpaca, goat, horse), and all farming practices (i.e., conventional farms that use drenches, organic farms, biodynamic farms).

Most information regarding dung beetles, what they do with the dung, their long term benefits and management are provided on the following website: www.dungbeetles.co.nz

The aim is to maximise establishment success with the following:

1. **Where to seed beetles on your farm (try to adhere to as many of the following as possible).**
   a. **Sun.** Choose a sunny paddock. On hilly farms or farms with sloping paddocks, aim for a north facing slope that gets maximum sunshine.
   b. **Shelter.** Not essential, but if possible choose a sheltered paddock which has natural contour shelter or shelter belt protecting the paddock or the part of the paddock, where the dung beetles will be seeded, from prevailing winds and bad weather. Beetles should be seeded on the leeward side of shelter.
   c. **Ponding/surface flooding.** Avoid paddocks prone to ponding or surface flooding as this will inhibit or prevent dung beetle establishment and may adversely affect development of the eggs and grubs developing in dung balls buried beneath the ground by adult beetles.
   d. **Central location**. Choose if possible the most central paddock on your farm to seed your dung beetles on. Alternatively choose one that is in the middle of your rotational grazing plan or located where the beetles can follow. Dung beetles detect the smell of fresh dung carried on even the slightest wind currents and fly to the nearest fresh new dung supply.

2. **The seeding paddock.**
   a. **Have ample fresh dung available in the paddock where dung beetles are seeded.**
   Choose fresh 0-24 hour old manure in paddock with ample piles of manure.
   Choose paddock where beetles can easily follow stock movement to colonize their manure.
   You can release additional colonies in same paddock or in different paddock with different mob.
   BEEF AND SHEEP: focus with seeding colonies on high vol. beef poo. They will colonize sheep poo in time. If big paddocks then manure is more dispersed. Consider strip grazing during release week to concentrate the manure in the chosen release paddock. This will reduce initial dispersal to maximise establishment success.
   b. **Drenched stock should be kept in paddocks as far away as possible from the establishing beetle colonies/seeding paddock(s) for at least a few weeks after drenching. The heaviest concentrations of residual chemicals are voided in this time.** There are many active chemical ingredients in drenches that are passed in the dung shortly after its application to the livestock that are lethal to dung beetles (and earthworms and other dung feeders), see: http://dungbeetle.org.nz/ GoTo BeetleMania inn the menu and click on Blog titled **"Establishing Dung Beetles and using chemicals for internal/external control of livestock pests".** There are a number of "dung beetle" friendly drenches available that can be used in conjunction with dung beetles. Alternatively there are a number of management practices that can be employed if drenching is continued in the presence of growing populations of dung beetles (see link above). Studies have shown significant reductions (more than 70%) in gut nematode survival and reinfection of livestock in the presence of dung beetles. An integrated approach with dung friendly drenches and dung beetles will lead to better sustainable management of nematodes and nematode resistance.

3. **Dung for seeding dung beetles**
   a. **Use fresh dung that is no more than 24 hours old.**
   b. **Firm dung is better than sloppy or liquid dung for seeding if possible.** If not, then don't worry adults utilise nutrients suspended in liquid component of manure. Liquid is excised out during nesting to make firm balls.
   c. **Avoid dung that has come from cattle that have been drenched within the last 6 weeks.**

4. **How to seed dung beetles**

   NB: Do not split up contents of one container and spread around farm. We need to maximise establishment success with seeding the contents of a container all in one spot surrounded by manure. They will spread once established.

   A video showing the seeding process can be found on our website: https://youtu.be/qizlCmVM26Q

   a. **For smaller species (Onthophagus binodis, O. taurus, O. vacca, Digitonthophagus gazella**). Invert entire contents if one container onto one large pile you have spread open with a spade. If releasing in the heat of the day then cover over with some manure to limit their escape response. This is unnecessary if seeding early in morning or late in the evening from sunset.
   b. **For bigger species (G. spiniger (paua beetle), Copris incertus, Onitis alexis, Bubas bison, Copris hispanus).** You will need to spread the contents of each container over several fresh cow pats in close proximity to one another. They will not all fit onto one pat!

   You may choose to utilise different seeding paddocks for different dung beetle species if you are receiving multiple species. Just make sure all individuals of a species are located together. For example, don't put half of your O. binodis beetles in one location and the other half in a different location on the farm (see 2. Making the chosen paddock a dung island).

If you have any queries or need further elaboration on preparing your farm for releases please do not hesitate to contact: **Dr Shaun Forgie** 021 040 86 85; e-mail: shaun@dungbeetleinnovations.com, or visit the dung beetle website: www.dungbeetles.co.nz