

Lepidosperma seed collection protocol

November 2013 version

Dr Andrea Kodym
The University of Melbourne, Burnley Campus
500 Yarra Boulevard, Richmond, VIC 3121
Phone 04 11157204
akodym@unimelb.edu.au

In our research we found that fruit production is generally low in field sites. Moreover, good fruits shed in about January and only non-viable fruits remain on the flower heads. We therefore recommend bagging.

When should I bag?

November, early December at the latest

What do I need?

About 30 – 40 nylon stockings (knee length is usually long enough) per population and ties.
Permit from the landowner (no special permit required from the DSE)

What do I bag?

The plants will usually carry at the time of bagging two (sometime even three) generations of flower heads. The fresh looking ones will flower in Feb/March. Don't bag these.

You are looking for flower heads that have a brown/blackish/grey head and a green stalk (see red circles on Fig 1). Often these flower heads have bent over and are near the ground. Check each flower head carefully, most flower heads do not carry any fruits.

Bag only flower heads with fruits (Fig 2). A maximum of 3 flower heads (if the numbers allow) per plant can be bagged, but not more to ensure you end up with a genetically diverse collection.

You can expect that the majority of fruits will be empty. It is not possible to tell if a fruit is filled or not by its appearance. Good indicators for filled fruit – but by no means a guarantee – are a shiny and hard fruit coat. In some populations we found only 1 or 2 viable fruits per flower head. So don't be tricked by flower heads with lots of fruits!

When do I collect?

Collection of flower heads can be done from the last week of January on til end of February by cutting off the flower stalk underneath the tie. Do not collect too early as we found that immature fruit shows delayed germination response *in vitro*. Since the flower heads are bagged there is no rush to collect. However, the longer you wait the harder it gets to find them again as they tend to bend even more and will end up lying on the ground.

What to I do next?

Keep the bagged flower heads in a dry place in a paper bag for another week or two. This will allow for some more shedding of good fruits to occur. When you collect the fruits from the stockings, keep the shed fruits separate from the material which is still attached to the flower head, as the shed fruits are most likely filled, the attached ones empty (Fig 3).

Is my fruit filled?

The best way of sorting your seed is by using an aspirator or another airflow based seed cleaner. Alternatively, do a sample cut test but only if you have plenty of fruits and can waste some of your collection. With forceps and scalpel cut open a small random sample – they are best observed under a stereo microscope.

You can do a floating test in water, but this is not highly reliable in *Lepidosperma*. Generally, filled fruits will sink, empty fruit will float. However, some of the filled fruits will also float. If the number of fruit that sink is not sufficient for your needs, retain the floating seeds for further testing.

References:

Kodym A, Tensch E, Bunn E and Delpratt J (2012) Ploidy stability of somatic embryo derived plants in two ecological keystone sedge species (*Lepidosperma laterale* and *L. concavum*, Cyperaceae). Australian Journal of Botany 60: 396-404.

Kodym A, Turner S & Delpratt J (2010) *In situ* seed development and *in vitro* regeneration of three difficult-to-propagate *Lepidosperma* species (Cyperaceae) Australian Journal of Botany 58: 107-114



Fig. 1: Different stages of maturity of flower heads in *L. concavum*. The circled heads are suitable for bagging.



Fig. 2: Bagged flower head of *L. longitudinale*



Fig 3: Fruits shed into nylon bag