



# Code of Practice

Ninety Mile Beach (Te Oneroa A  
Tohe) Weed / Mussel Spat  
Collecting, Storage, Transport  
and Seeding

August 2012

## Contents

Collection of weed/mussel spat.....	3
Handling of weed/mussel spat in the packing shed .....	3
Storage of weed/mussel spat .....	3
Transporting of weed/spat .....	4
Holding/handling of weed spat on the boat.....	4
Sampling Protocol for farmers to assess the numbers of spat being transferred and retained on rope. (Adapted from SpatNZ Protocol).....	5
Appendix 1 .....	6
Appendix 2 .....	7
Appendix 3 .....	8

## 1. Collection of weed/mussel spat

- Spat should be collected from the water (beached spat should be avoided)
- Temperature of the weed on the entire load (from the surface in the sun to the core of the load) should not be above 17°C and should not be below 7°C
- Humidity of the weed should not be below 85%
- Due to desiccation from the wind in transit, the top 5cm of weed should be discarded on reaching the shed or a system developed to keep it cool and moist (e.g. wet hessian could be used as a cover)
- Only resilient spat (i.e. spat which have fully metamorphosed, gathering reserves and growing) should be considered for collection. Therefore Spat counts should not include any spat which fall through a 250µm screen (i.e. 400µm in size).
- Collection data sheets should accompany the weed/spat to the destination (see Appendix I)
- If appropriate / practical the Mussel Spat Stress Test Kit can be used on the beach

## 2. Handling of weed/mussel spat in the packing shed

- Each bag of weed/spat will not exceed 10kg
- There should not be excessive quantities of sand in the bags
- Bags should not be stored or transported with water collected in the bottom
- The whole bulk of Weed/spat harvested from the beach should be kept cool (below 17°C) and out of the sun at all times
- Bags should not take longer than 4h to chill to 7°C or 8°C
- If the air humidity is low then weed/spat should be moistened with cool sea water periodically to avoid desiccating the spat.
- Bags of weed should not be dropped from a height greater than 1m
- Even when kept cool and moist the weed should not spend more than 6 hours on the harvesting vehicle/trailer
- It's advisable that the Mussel Spat Stress Test Kit is used during handling of weed/mussel spat in the packing shed

## 3. Storage of weed/mussel spat

- Entire contents of the bags should be chilled to 7°C as quickly as possible.
- Spat should not be held for longer than 24 hours before transport to farmers.
- Open bags in chillers should be held as such for a maximum of 5 hours (This is to be tested and will be based on the humidity in the bags being cooled)
- Open bags in chillers should be closed if the humidity falls below 85% This is to be tested and will be based on the humidity in the bags being cooled)
- Bags should not be subjected to more than 20kg of mass (i.e. no more than 2 bags plus ice above any one bag) (Again this is to be tested and modified according to survival etc. of spat subjected to compression and practical issues.)

#### 4. Transporting of weed/spat

- Chilling of the spat from shed temperature to holding temperature during transport should be avoided unless the contents of the bags can be chilled to a constant temperature in a short space of time. The issue arises that hot weed/spat will melt the cooling ice within the bag mass and temperatures will escalate in the core of the mass over time.
- Transport temperature should be maintained between 7°C and 10°C

#### 5. Holding/handling of weed spat on the boat

- Bags of weed should be shaded
- Bags of weed should not exceed 17°C at any time prior to being seeded.
- Bags of weed should not be positioned directly on the vessel deck without an insulation layer (e.g. a wooden pallet).
- To avoid desiccation bags of weed should not be opened more than 20 minutes before seeding.
- Bags of weed should not be dropped from a height greater than 1m
- Bags should be stacked so they remain cool, i.e. they do not start “composting” and increase in temperature.
- Bags should not be subjected to more than 20kg of mass (i.e. no more than 2 bags plus ice above any one bag) (again this is to be tested and modified according to survival etc of spat subjected to compression.)
- Spat should be pre-dampened prior to being seeded. (This has to be tested)
- It’s advisable that the Mussel Spat Stress Test Kit is used during holding/handling of weed spat on the boat

## 6. Sampling Protocol for farmers to assess the numbers of spat being transferred and retained on rope. (Adapted from SpatNZ Protocol)

### Sampling rope for spat number assessments

- Rope samples to be collected by the Skipper
- Rope samples must be kept in a, fridge or freezer until transferred to a blast freezer for storage
- Labels will be waterproof paper and writing in pencil only (pen can run)
- Label information to include
  - Vessel
  - Skipper
  - Date
  - Farm number
  - Rope number
  - Date seeded

### **Collection (by skipper)**

- Replicate samples are taken from rope in the middle of the transfer (or treatment).
- 3+ samples ideally from different depths
- Each sample should be a length of spat rope between 300-500mm.
- Put each length in a separate bag (A4 size) which is labelled well (labels provided).
- Seal the bag squeezing out the air as you go.
- Put in freezer until processed.
- Complete Farmers Spat handling record (see Appendix II)

### **Processing**

**This is suggested to be by one person per region so it is standardised and they have the equipment. Perhaps one person in Havelock, one in Coromandel, one in Golden Bay. Samples can be stored until there are a number of them and then the person spends a day or two processing.**

- Samples can be processed from frozen or thawed but should be processed <6 hrs after removal from the freezer.
- Open bag and put sample in a 300mm down pipe (~300mm long) with a 150 mesh tightly glued over one end. (upweller / downweller) – (can be arranged via Cawthron or perhaps SpatNZ.
- Rinse the bag contents into the downweller as well.
- With moderate pressure wash all the spat off the rope, catching them in the screen as you go.
- Wash weed as well.
- Measure the length of rope
- Concentrate the spat into the side of the downweller (can use a water bath)
- Suck the concentrated spat up and either put into a small labelled container for counting later or count straight away.
- Subsample if required (plunger method works with smaller spat)
- A trained eye can also make health observations while counting.

## Appendix I

### Collectors record sheet for investigation of spat conditions

Name ..... Date.....

#### Weather and conditions (please circle)

Raining hard          showers          partly cloudy          full sun          night time

Water temperature .....

Air temperature at start of collection .....

Air temperature at end of collection .....

#### Timing – Please provide one sheet per tide

Time weed was found on the beach .....

Time weed harvest started .....

Time weed harvest ended .....

Time taken in transit to shed .....

Packing start time .....

Packing end time .....

Total time weed is in the chiller (from first bag in to last bag loaded on vehicle).....

**Weed/Spat Quantity** collected (this tide).....

**Weed/spat quality** (please circle)          Good          Bad

Spat count per KG    250µ .....    500µ .....    1200µ .....

Spat stress % (measured in the shed) .....

#### Holding & Transport

Temperature of chiller .....

Start of transit to farm site .....

Offloading site .....Arrival time at offloading site.....

New Temperature data loggers collected for next load          Yes          No

**Observations/comments**

## Appendix 2

### Farmers spat handling record

Date.....

Receiving company.....

Vessel.....Skipper.....

Time of spat arrival at wharf..... Time of spat offload.....

Quantity of spat.....

### Condition of spat

Stress test %.....

State of weed – moisture content in bag (ml of water.....

Signs of desiccation.....

### Weather and conditions (please circle)

Raining hard    showers    partly cloudy    full sun    night time

Water temperature at deploy site 1 ..... Locality.....

Water temperature at deploy site 2 ..... Locality.....

Water temperature at deploy site 3 ..... Locality.....

Air temperature at receipt of weed .....

Air temperature at end of seeding .....

### Handling and transit

Time at vessel departure.....

Time at start of seeding of weed.....

Time of completion of seeding time .....

Method of holding spat on deck    loose    in mussel bags    in Bins

shaded    full sun

Data loggers collected and returned to Manager    Yes    No

### Observations/comments

## Appendix 3

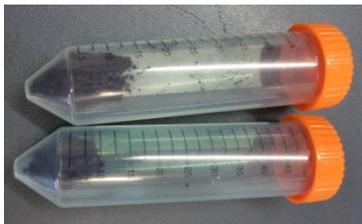
### Contents of mussel spat stress test kit



4 Grades of Sieves, with a detachable funnel



Eyedroppers and test tubes



Powered dye, ready to mix with 50mls of water



Sample trays and a tray to immerse the samples in



The complete kit