

## **MAJOR UPDATE JUNE 2021**

### **Organic MycroNutrient (water on) manual**

This is an easy to use product which is watered onto the casing during the case run or pinning and between the flushes. This complement is called Organic MycroNutrient and comes in 20L drums or 1000L IBC. Suitable for White and Brown Mushrooms.

#### **1. Storage**

The drums should be stored in clean disinfected environment, out of the sun in a dust and frost free area. If stored incorrectly, you may experience some gassing (CO<sub>2</sub>) in the container (more likely in the IBC) and in which case this should be released periodically if not being used.

Each drum has a batch number that can be used for traceability and we recommend recording this on your growing charts.

There is an expiration date of 9-10 months with this product, but we recommend that it is used 6-8 months after day of production, because of settling.

#### **2. Preparation**

All concentrated product must be agitated before use as it separates during storage over a relatively short period. For 20L drums shake hard. For IBC's use a paddle mixer and/or circulation pump to ensure all contents are thoroughly mixed. The following link shows a simple way to do this <https://youtu.be/oVHFuksh2VU>. Please do this for a few minutes. We suggest first time using a mixing paddle to break up any settlement and then simply the circulation pump or wooden lath every time thereafter.



Mixing Paddle

Ensure dispensing tank and pipe work etc is clean and disinfected. Rate of use is between 60 and 225ml/m<sup>2</sup> MycroNutrient on each application depending on your situation..

For lower doses (60-175ml/m<sup>2</sup>) dilute to produce a 1 L/m<sup>2</sup> watering. For higher doses (180-225ml/m<sup>2</sup>) dilute to produce a 1.25 -2L/m<sup>2</sup> watering.

For example, if you are applying 120ml/m<sup>2</sup> on say 300m<sup>2</sup> area:

This means for starting dose you need 300 x 120ml (0.15L) = 36 litres of MycroNutrient and adding 264L water to this in a tank would give 300 L total i.e 1L/ m<sup>2</sup> watering.

The diluted mix should be continuously agitated during application onto the casing, use as quickly as possible. Do not store in an undiluted state.



Diluted Tanks for Spraying

Remove fine filters in lines and use a watering tree, overhead or drip irrigation system for application to the casing surface. <https://youtu.be/sH-PMKt2u6M>

Be careful to avoid loss of product through leaching out of the casing or on the floor.



Application by watering tree, overhead or drip irrigation

### 3. When do I apply?

Normally speaking in case run you would apply water gradually increasing on days 1, 2 and 3. The complement (MycroNutrient) would be applied on the last water (probably day 4) and environment would be gentle to encourage correct temperature in the casing already mentioned to facilitate feeding.

If you do a second ruffle during case run, you can apply just prior to that which is also effective. Only apply in a MAXIMUM OF 1L/m<sup>2</sup> application if last water of case run.

Any watering's around late case run, post ruffle are very sensitive to mycelium. We want mycelium to be strong so it consumes maximum amount of nutrition during this short feeding period.

Application rates and Timing information is given below and is dependent of number of flushes you take and the number of applications made and when they are made. One of the most important times is at early pinning (day 10/11 typically) when pins have just formed between 'starring' and 5-8mm maximum.

From a practical point of view it is important that the casing surface structure can absorb the dose within 20 to 30 minutes which allows the pins to dry off properly and prevent the casing remaining at saturation. The casing surface should change from glistening with free water to a dull colour without being able to squeeze water from the surface after about 2 to 3 hours as the application is absorbed into the upper casing zone and normal gaseous exchange is not impeded before the second flush. If puddling does occur then the casing may be holding too much unabsorbed water already. Under such circumstances then the dose may need to

be added before this state occurs. It may also be that the structure needs to be improved at casing or after ruffling to help maintain better granulation and prevent the surface becoming too smooth.

#### **IMPORTANT NOTE**

The key is that we want the MycroNutrient concentrated in the pinning zone, not washed out of the casing into compost!

#### **4. Post application hygiene**

Flush out tank, pipe work and nozzles etc with clean water after use, disinfect with hypochlorite or Sporekill (2%). Leave to dry.

#### **5. Case Run**

Record the temperatures in the casing as well as air and bed temperatures on crop cards. You should monitor this carefully to ensure feeding temperature is reached and for how long. Casing temperature is not the same as compost and is influenced by cold air temperatures and watering.

The optimum temperature for feeding is 23C in casing or on the interface for a minimum of 2-3 days. This normally happens from start of 'recovery' through first days of airing. THE LONGER FEEDING TIME THE BETTER.

Avoid pushing compost temperatures too high (27C +) in order to bring up the interface or casing temperature.

During late stages of pinning is also great feeding time as conditions are warm and a lot of metabolic activity is occurring in the mushroom.

#### **6. Chemicals / Nematodes**

We have tested MycroNutrient in presence of nematodes and they do not affect the efficacy of them. Full report available on request. Fungicides eg Sporgon, Vivando etc will knock back mycelium which is counter active against feeding mycelium if applied close together so bring this back a bit earlier in case run. Ideally MycroNutrient complement should go in last water or better still in last water and early pinning in 1L/m<sup>2</sup> maximum.

#### **7. Post 1<sup>st</sup> flush**

Because the yield may be higher on 1<sup>st</sup> flush and how much moisture you lose from the casing, you may need to adjust water in between 1<sup>st</sup> and 2<sup>nd</sup> flush to take account of this. This is where 2<sup>nd</sup> application is made of 250ml/ m<sup>2</sup> in a 1L watering in same way as previous application.

When making this application it is important to be well advanced with watering up the casing between the flushes. We normally aim to have around 70/80% of the water we plan to add in the casing before the dose. This dose can be the final or penultimate watering. It is advantageous to add a light wash off watering after the application to rinse the growing pin set/stragglers and ensure all the MycroNutrient complement is in the upper zone of the casing layer for feeding/ uptake.

The size of pins should be less than 5-8mm for the second dose, make sure absorption is immediate and growing pins do not sit in water. This is an important feature for you to watch and adjust as you develop best practice for the farm and your picking profile but the principle remains to apply later to avoid diluting the dose and pushing it towards the bottom of the casing layer.



2<sup>nd</sup> flush quality from MycroNutrient

## 8. Extra applications

Some growers are reporting successes with repeated applications of 60-120ml/m<sup>2</sup> after 2<sup>nd</sup> flush and even 3<sup>rd</sup> flushes and this has been verified by recent independent trials from Ralph Noble (available on request).

### **IMPORTANT NOTE**

We have a good impression from the field that when there are shortages/delays of nutrition coming from the compost at certain crop stages. MycroNutrient is very good at making up the differences in low fill weight situations (less than 85 kg/m<sup>2</sup>) and when compost is running out of nutrition in later stages. However, it is important that MycroNutrient has been applied in early stages so the mycelium can respond, recognise and utilise the later applications.

## 9. Dosing rate

It is important to note that applications stated are the minimum rates. Results depend on feeding uptake and therefore relate to growing conditions and techniques. If you see the improvement in 1<sup>st</sup> flush, but less obvious in 2<sup>nd</sup> flush and 3<sup>rd</sup>, it will most likely be due to feeding uptake ie not enough dose and/or washing away from the surface.

## 10. Cleaning off mushrooms

For growers with brown mushrooms and for situations where watering is made on large mushrooms, it is prudent to give a small watering ( $\frac{1}{2}$  L/ m<sup>2</sup>) to wash off the calcium suspension off the caps.

## 11. What should I be looking for?

The first thing you are most likely to observe is mushrooms staying harder on last days of pick to the end of the flushes. Less light veiled mushrooms in 2<sup>nd</sup> and 3<sup>rd</sup> flushes. These mean extended picking in flushes which will help picking management. You may not always see an increase on 1<sup>st</sup> flush and that is normal ie there is enough nutrition already there for that flush in most situations. It is the 2<sup>nd</sup> and 3<sup>rd</sup> flushes which are the challenge. The applications are skewed to the early stages as it takes a little time to ensure it gets into the mycelium and up to the growing mushroom. The boost in production will be coming from heavier better quality mushrooms with higher dry matter content.

## **12. 2 or 3 flushes**

Obviously with 2 flushes, the response required will be in the 1<sup>st</sup> and 2<sup>nd</sup> flushes. In this regard the 3 dose pattern below should be adopted.

## **13. 2 or 3 applications**

### 2 applications approach.

1<sup>st</sup> application of 200-250 ml/m<sup>2</sup> in the case run (last or penultimate water) to prime hyphae to feed

2<sup>nd</sup> application of 200ml/m<sup>2</sup> after 1<sup>st</sup> flush and before 2<sup>nd</sup> flush on the last of those watering's. Total application 400-450ml/ m<sup>2</sup>.

This is the safest option and also it the best from helping with disease control perspective (delaying onset). Boost is more visible in 3<sup>rd</sup> flush.

### 3 applications approach.

1<sup>st</sup> application of 120 ml/m<sup>2</sup> in the case run (last or penultimate water) to prime hyphae to feed

2<sup>nd</sup> application of 60ml/m<sup>2</sup> on early pins of 1<sup>st</sup> flush (day 10-12)

3<sup>rd</sup> application of 120 ml/m<sup>2</sup> after 1<sup>st</sup> flush and before 2<sup>nd</sup> flush on the last of those watering's.

Total application 300ml/ m<sup>2</sup>.

This is the best option by far. We are finding this is the most important period of shortfall of nutrition as compost switches to fruiting and large scale mycelium expansion is occurring.

*28 June 2021 Updated*