

# INSTRUCTIONS FOR USE

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Use a 1 ha pack for 1 ha, a 5 ha pack for 5 ha, or a 10 ha pack for 10 ha.  
Do not vary this rate.

## STEP 1: REHYDRATING THE MICROBES

Fill the plastic rehydration container with 50 or 100 ml of **non-chlorinated** water. Shake to mix in the microbe food.

Remove the sealed lid of the vial of microbes. Pour in some water from the rehydration container and place a thumb over the top. Shake to dissolve the microbes and pour them back into the rehydration container. Repeat this until all the microbes are in the rehydration container. For 10 ha packs repeat this with the second vial.

Screw the lid on firmly and shake **thoroughly** for 30 seconds to 1 minute. Wait 5 minutes then shake thoroughly again. The microbes are now ready to mix into the application tank to apply to the crop.

The TwinN solution can be kept in the fridge for 1 week taking good care **not to let them freeze**.

## STEP 2: APPLICATION TO THE CROP

**Application methods need to deliver the TwinN solution into the moist root zone.** Contact with foliage is not a problem but the bulk of the application should contact the root zone to maximise efficacy. **Do not tank mix with fertilisers or agrochemicals.** Application methods include:

1. Via overhead irrigation in enough water to take the microbes into the root zone.
2. Via any fertigation system including micro-sprinklers, drip irrigation, trickle tape or similar.
3. Via liquid injection from a tine that cuts into the root zone. Note that tines are available that can deliver fertiliser products at one depth and TwinN at a different depth. Apply in as much water volume as is practical (minimum 100l/ha).
4. Via water run in-furrow irrigation(flood irrigation). This applies to farmers who are set up to deliver urea etc by this method.
5. By boomspray onto moist soil. Use very coarse or streaming nozzles and as much water as is practical. For wide row crops band the application onto the plants.

Calculate the amount of water to be delivered to the crop area and mix in the correct amount of TwinN microbe solution after shaking it to re-suspend the microbes. Apply the tank mixed microbes within 24 hours and stir to resuspend the microbes in the tank if necessary.

**Chlorinated water** can be de-chlorinated by adding 2g sodium thiosulfate (STS) per 100L. Pre-dissolve in a small volume of water and mix into the tank water thoroughly. Wait 5 minutes before adding TwinN mix. Consult [TwinN@mabiotec.com](mailto:TwinN@mabiotec.com) for alternative de-chlorination methods for organic growers.

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## WHEN TO APPLY TwinN



- ◆ For annual crops such as cereals, canola (oil seed rape), maize (corn), sugar beet, sugarcane, vegetables etc, apply once at 5-8 leaf stage. If very high yields are targeted a second application at the end of vegetative stage can be used, but for most situations a single application is sufficient. A single application later in the crop cycle can be used to boost yields or recover the crop from water-logging.
- ◆ For ratoon crops apply once soon after active re-growth has commenced.
- ◆ For cotton apply once at start of squaring or later on top of standard N rates.
- ◆ For potatoes use one application at 5-6 leaf stage and a second application a month later.
- ◆ For tree crops (including tea) apply at the start of active spring growth and again at the end of the season before root activity has ceased. For forestry apply at planting and then once per year in spring/early summer or in the rainy season.
- ◆ For most vine crops use one application at the start of active vine growth. Use a second application 2/3 through the season for high value crops. For wine grapes a single application is sufficient.
- ◆ For pastures apply TwinN at the start of the growing season onto actively growing pasture. Use a second application 4 months later or 2/3 of the way through the growing season. For very high intensity pastures consider 3 applications per year.

For enquiries about application of TwinN in other crops, or how to fit it into your nutrition program, contact your local distributor, or [TwinN@mabiotec.com](mailto:TwinN@mabiotec.com) for personalised advice.

## HOW MUCH NITROGEN TO CUT WITH TwinN?

Note that growers can cut N by using TwinN but should **not reduce P, K** etc.

If N is applied in split applications, keep the first application standard and cut N in later applications.

If crop prices are high and yield maximisation is the goal then apply TwinN with a small reduction in N, or on top of the standard rate of N.

- ◆ For annual crops such as cereals, canola (oil seed rape), maize (corn), sugar beet, cotton, sugarcane, vegetables etc that use high rates of N, cut N by 25-30% **up to maximum cut of 30 U of N/ha.**
- ◆ For tree crops that use moderate rates of N (eg. 100-140 kg N/ha), cut N by 30-40% **up to a maximum of 50 U/ha.** Spread the cuts in N across the growing season.
- ◆ For pastures, cut N by 25% **up to a maximum of 40 U/ha.** Spread the cuts in N across the growing season.

For any enquiries and individual advice, contact [TwinN@mabiotec.com](mailto:TwinN@mabiotec.com) or Office +61 7 5445 7151.

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