

GB86734052d rA1b



# Betanal<sup>®</sup> Tandem<sup>®</sup>



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GROUP 5 | 15 HERBICIDES

Betanal Tandem is a broad-spectrum post-emergence contact/residual herbicide which controls a wide range of annual broad-leaved weeds in beet crops.

## MAPP 19257

A suspension concentrate containing 200 g/L (18.2% w/w) phenmedipham and 190 g/L (17.3% w/w) ethofumesate.

The (COSHH) Control of Substances Hazardous to Health Regulations may apply to the use of this product at work.

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230 Cambridge Science Park  
Milton Road  
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CB4 0WB

Telephone: 01223 226500

**For 24 hour emergency information  
contact Bayer CropScience Limited  
Telephone: 00800 1020 3333**



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GB86700689c rA1b

## BETANAL TANDEM

UFI: C2T0-Y09Y-200H-YK77

Contains 200 g/L (18.2% w/w) phenmedipham and 190 g/L (17.3% w/w) ethofumesate.



## WARNING.

Causes serious eye irritation.

Very toxic to aquatic life with long lasting effects.

Wear protective gloves/protective clothing/eye protection/face protection.

Wash the contact area thoroughly after handling.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/ attention.

Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

Contains reaction mass of 5-chloro-2- methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3- one (3:1). May produce an allergic reaction.

To avoid risks to human health and the environment comply with the instructions for use.

## IMPORTANT INFORMATION FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

CROPS	MAXIMUM INDIVIDUAL DOSE	MAXIMUM TOTAL DOSE PER CROP	LATEST TIME OF APPLICATION
Sugar beet, fodder beet and mangels.	1.5 L product/ha	4.0 L product/ha/ crop	Before crop leaves meet between the rows.

### OTHER SPECIFIC RESTRICTIONS:

The maximum total dose must not exceed 1.0 kg ethofumesate per hectare in any three year period.

**READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS**



To access the **Safety Data Sheet** for this product scan the code or use the link below:  
<https://cropscience.bayer.co.uk/our-products/herbicides/betanal-tandem>

or alternatively contact your supplier

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**Bayer**

## **SAFETY PRECAUTIONS**

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### **Operator Protection**

WASH CONCENTRATE from skin or eyes immediately.

DO NOT BREATHE SPRAY.

WASH HANDS AND EXPOSED SKIN before eating, drinking or smoking and after work.

WHEN USING DO NOT EAT DRINK OR SMOKE.

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

WEAR SUITABLE PROTECTIVE GLOVES AND FACESHIELD when handling the concentrate.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows that they provide an equal or higher standard of protection.

### **Environmental Protection**

Do not contaminate water with the product or its container. (Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads).

### **Storage and Disposal**

KEEP OUT OF REACH OF CHILDREN

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDINGSTUFFS.

KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.

WASH OUT CONTAINER THOROUGHLY, empty washings into spray tank and dispose of safely.

PROTECT FROM FROST

SHAKE WELL BEFORE USE

## **DIRECTIONS FOR USE**

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IMPORTANT: This information is approved as part of the Product Label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

### **INTRODUCTION**

Betanal Tandem is a selective weed-killer for the post-emergence control of many annual weeds in sugar beet, fodder beet and mangels.

Betanal Tandem is recommended for low volume overall spraying in a planned spray programme and can follow an approved pre-emergence herbicide and/or an approved post-emergence herbicide treatment(s) used at recommended doses for low-dose programmes.

Betanal Tandem acts mainly by contact action but will, in a planned programme and in moist conditions, provide residual control of some later germinating weeds.

Betanal Tandem should always be applied in mixture with a suitable adjuvant oil such as 95% methylated rape seed adjuvant oil or 95% methylated vegetable adjuvant oil.

## **WEEDS CONTROLLED**

For best results the largest weeds should not be beyond the fully expanded cotyledon stage at spraying.

### **Weeds controlled at the expanded cotyledon stage by a series of well timed Betanal Tandem + oil sprays**

- |                           |                        |                          |
|---------------------------|------------------------|--------------------------|
| • Black-bindweed          | • Groundsel            | • Cleavers*              |
| • Bugloss                 | • Marigold, Corn       | • Hemp-nettle, Common*   |
| • Charlock                | • Nettle, Small        | • Knotgrass*             |
| • Chickweed, Common       | • Nipplewort           | • Meadow-grass, Annual*  |
| • Dead-nettle, Henbit     | • Orache, Common       | • Pale persicaria*       |
| • Dead-nettle, Red        | • Pansy, Field         | • Redshank*              |
| • Fat-hen                 | • Penny-cress, Field   | • Speedwell, Ivy-leaved* |
| • Field-speedwell, Common | • Pimpernel, Scarlet   |                          |
| • Fumitory, Common        | • Radish, Wild (Runch) |                          |

### **Weeds controlled at the expanded cotyledon stage by a series of well timed Betanal Tandem + oil + Goltix 70 SC sprays**

- Mayweed

\* under difficult conditions, improved control of these weeds will be obtained by using the tank mixture with Goltix 70 SC.

## **CROP INFORMATION**

All varieties of sugar beet, fodder beet and mangels may be treated with Betanal Tandem or with Betanal Tandem mixtures.

### **Soil**

Betanal Tandem may be used on all soil types. On soils with more than 5% organic matter content residual activity may be reduced.

### **Drift**

Avoid drift to areas outside those being sprayed, having due regard to the prevailing weather conditions and spray quality being used. The risk of drift is greater when a FINE quality spray, as recommended for this product, is used.

### **Timing:**

The first Betanal Tandem low volume application should be made when the majority of crop plants have reached the fully expanded cotyledon stage.

The earliest germinating weeds should not be larger than the fully expanded cotyledon stage at the time of spraying. This is essential on organic soils, and on mineral soils where a pre-emergence treatment has not been applied. Further Betanal Tandem low volume sprays must be applied as each new flush of weeds reaches the cotyledon stage.

On mineral soils, where a pre-emergence spray has been used, the first Betanal Tandem low volume spray may be delayed until the first flush of weeds reaches cotyledon stage. Any early germinating susceptible weeds which are slightly larger at this time may not be killed by the first treatment. They will usually be checked and then controlled by later applications.

Where a pre-emergence treatment has been applied as a band spray, it will be necessary to time the first post-emergence Betanal Tandem low volume treatment according to the size of weeds present between the rows where there is no pre-emergence effect.

Successful results from a low volume programme are achieved by applying each spray when the previous one is still showing an effect on the weeds.

A minimum of 5 days must elapse between treatments.

**Latest Time of Application**  
Before the crop leaves meet between the rows.

**Dose:**  
**Betanal Tandem plus adjuvant oil. (such as 95% methylated rapeseed adjuvant oil or 95% methylated vegetable adjuvant oil).**

Maximum Individual Dose	1st spray	2nd and subsequent sprays	Maximum Total Dose Per Season	Volume
<p>Do not exceed the doses stated below. The maximum approved dose for Betanal Tandem is 1.5 L/ha.</p> <p>A programme of sequential Betanal Tandem low volume treatments should be applied as directed below.</p>	<p>Crop and weeds at cotyledon stage</p> <p>1 L/ha + 1 L/ha oil</p>	<p>Crop at or beyond two true leaf stage</p> <p>1.5 L/ha + 1 L/ha oil</p>	<p>4 litres/ha/crop</p>	<p>80 to 100 litres water per hectare.</p> <p>Do not exceed this volume. To do so may result in crystallisation and nozzle blockage. Maintain agitation during spraying.</p>

**Spray operations and Spray Quality**  
Betanal Tandem should be applied overall as a FINE quality spray (for details see “Boom Sprayers Handbook” published by BCPC).

The required spray quality can be achieved by selecting an appropriate combination of nozzles, pressure and forward speed. Fan or hollow cone nozzles which have an output of 0.3 to 0.6 litres per minute at 3 bar have been found to be suitable. Fan nozzles must have at least an 80° spray angle.

F80 -110 / 0.3-0.6 / 3  
HC - / 0.3-0.6 / 3

Even cover with a FINE quality spray is essential for good results. Take care to avoid overlapping.

### **IMPORTANT – SHAKE THE CAN WELL BEFORE USE**

1. Wash out the sprayer, spraybars and nozzles to ensure that no trace remains of previous products. This is most important after hormone and sulfonyl urea weedkillers. Contaminated hoses should be replaced by new hoses.

NB All hose connections must be secured with hose clips.

2. Check that nozzle tips are clean, undamaged, of the correct type to give a FINE quality spray, and are all of the same size, giving equal spray outputs and distribution.
3. Half fill the spray tank with clean water and start agitating. Check the agitation is operating correctly. Add the required quantity of Betanal Tandem, mixing well by agitation, and complete filling to the final volume. Mix only sufficient chemical for immediate use and continue agitation until the tank load is used.

(See COMPATIBILITY AND SEQUENCES for any special instructions for preparing tank mixes.)

4. Ensure that the spray nozzles are set at the correct height to give even spray cover. Commence spraying, being careful to maintain correct pressure and tractor speed. Avoid overdosing or drift onto neighbouring crops.
5. After each day's work, drain the sprayer, wash thoroughly with water and liquid detergent and spray out completely. Ensure that all liquid is removed from the sprayer tank, pump and hoses. Remove nozzles, open tank and drain pump to allow free access of air to all parts of the system.
6. Do not re-use the container.

### **COMPATIBILITY AND SEQUENCES**

Application of Betanal Tandem with insecticides may cause an increase in crop damage from which the crop will usually recover quickly.

#### **Compatibility**

Betanal Tandem plus adjuvant oil is compatible with any one of the following:

- Dow Shield 400 (see directions below)
- Goltix 70 SC (see directions below)

#### **Betanal Tandem + oil + Goltix 70 SC**

For improved control and residual activity Goltix 70 SC may be added to Betanal Tandem applications in a low volume post-emergence programme.

#### **Dose**

- Betanal Tandem: 1 or 1.5 L/ha + 1 L/ha oil
- Goltix 70 SC: 1 kg/ha

Goltix 70 SC should be thoroughly dispersed in the spray tank one third full of water before adding Betanal Tandem and adjuvant oil and filling to the mark. Continue agitation whilst spraying.

#### **Timing**

As for Betanal Tandem alone.

**Betanal Tandem + oil + Dow Shield 400**

For the control of creeping thistle and mayweeds larger than cotyledon size (up to 4 leaves) Dow Shield 400 may be added to a Betanal Tandem low volume post-emergence programme.

**Dose:**

Betanal Tandem 1.0 or 1.5 L/ha + 1.0 L/ha adjuvant oil

**plus**

Dow Shield 400: 0.25 L/ha

**Timing.**

As for Betanal Tandem alone.

Thistles require a second treatment with Dow Shield 400 (see Dow Agrosiences literature).

This mixture may be used on all soil types.

**Sequences*****Programmes with pre-emergence treatments***

Betanal Tandem and Betanal Tandem mixtures may be used as part of a planned programme after the use of approved pre-emergence treatments at commercially recommended doses.

***Programmes with post-emergence treatments for broad-leaved weeds***

Betanal Tandem and Betanal Tandem mixtures may be used as part of a planned programme before or after the use of approved post-emergence treatments at commercially recommended doses.

***Sequences with grass weedkillers***

Betanal Tandem and Betanal Tandem mixtures may be used before or after grass weedkillers. Please refer to graminicide product literature for information on intervals.

**SUCCEEDING CROPS**

Beet crops may be sown at any time after the use of Betanal Tandem. Any other crop may be sown 3 months after using Betanal Tandem. Ploughing (mould board) to a minimum depth of 15 cm should precede preparation of a new seed bed.

**COMPANY ADVISORY INFORMATION****Crystallisation**

The interval between preparation of the spray mixture and completion of spraying should be kept to a minimum, certainly no more than two hours. Any longer may result in crystallisation, particularly if the water temperature is below 5°C (41°F).

**Crop Tolerance**

Several factors may affect the crop tolerance and performance of Betanal Tandem especially when used in mixtures. Some transient crop effects may occur soon after application but when the crop is under stress, application of Betanal Tandem can lead to crop check from which it may not fully recover. In extreme cases some loss of crop may occur.

Application of Betanal Tandem or Betanal Tandem mixtures is not recommended when the crop is suffering from stress. Stress can be caused by a number of circumstances, the most important of which are as follows.

#### **Use after other Herbicides**

Most beet crops are treated with more than one herbicide. In these circumstances it is not always possible to predict the interactions which may occur, and the effects of stresses in such conditions may be more severe.

#### **Manganese Deficiency**

If a crop is suffering from manganese deficiency it may be checked by Betanal Tandem. To avoid crop check, manganese should ideally be applied to the crop first.

#### **Lime Deficiency**

Crops suffering from lime deficiency may be checked when sprayed with Betanal Tandem. Growers should ensure that the lime status of the soil is satisfactory before drilling.

#### **High Temperatures**

When the temperature is, or is likely to be, above 21°C (70°F) on the day of spraying, application of Betanal Tandem should be made after 5 pm otherwise crop check may occur.

If crops are subjected to substantial day to night temperature changes shortly before or after spraying, a check may occur from which the crop may not fully recover.

#### **Frost**

Crops sprayed with Betanal Tandem and subjected to frost within seven days may be checked such that they may not fully recover.

#### **High Light Intensity**

Where the crop is already under stress, and Betanal Tandem is sprayed in conditions of high light intensity, the crop may suffer a check from which it may not fully recover.

#### **Wind**

Strong winds can damage crops by physical buffeting and contingent damage can arise from blown soil particles. When wind damage has occurred, delay application of Betanal Tandem until the crop has recovered.

#### **Insect Attack**

If the crop is damaged by insects, eg mangel fly, pygmy mangel beetle or flea beetle, Betanal Tandem may cause a check from which the crop may not fully recover.

#### **Storage**

Store well away from seeds, fertilisers and animal feeding stuffs, out of direct sunlight in a safe, dry place designated as an agrochemical store.

#### **RESISTANCE**

Certain weeds may develop resistance to Bayer products. Since such circumstances are beyond our control, Bayer CropScience will be under no liability for any resulting loss or damage whatsoever.



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