CAUTION

KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

DiPel® SC

BIOLOGICAL INSECTICIDE SUSPENSION CONCENTRATE

ACTIVE CONSTITUENT: *Bacillus thuringiensis* subsp *kurstaki* ABTS-351
Carrier: 683 g/L LIQUID HYDROCARBONS

GROUP **11** INSECTICIDE

For control of Lepidoptera pests on field crops and cotton as per the DIRECTIONS FOR USE table

GENERAL INSTRUCTIONS:

DiPel SC contains live spores and endotoxin of a naturally occurring bacterium. This product is toxic only to caterpillars of certain Lepidopterous insects (moths and butterflies). It does not harm beneficial insects and mite predators and there are no harmful crop residues. The product does not kill immediately. Once a caterpillar eats treated foliage, it stops feeding, thus protecting the crop from further damage, but it may remain on the foliage before rotting and dropping to the ground, which normally occurs within 3-4 days.

INSECTICIDE RESISTANCE WARNING

GROUP **11C** INSECTICIDE

For insecticide resistance management DiPel SC is a Group 11 insecticide.

Some naturally occurring insect biotypes resistant to DiPel SC and other Group 11 insecticides may exist through normal genetic variability in any insect population.

The resistant individuals can eventually dominate the insect population if DiPel SC or other Group 11 insecticides are used repeatedly. The effectiveness of DiPel SC on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, Valent BioSciences and Sumitomo Chemical Australia accept no liability for any losses that may result from the failure of DiPel SC to control resistant insects.

DiPel SC may be subject to specific resistant management strategies. For further information contact your local supplier, Sumitomo Chemical Australia representative or local agricultural department agronomist.

MIXING

Ground and low-volume application: When combining DiPel SC with other compatible products in spray tanks, ensure that tanks are first emptied of all insecticides and washed out thoroughly. Add water to the spray tank to the level which provides maximum agitation. Add a buffering agent when using water with a pH greater than 8.5. With the agitator running, add the DiPel SC. Continue the agitation, add the other products and then the balance of water. Maintain the suspension whilst loading and spraying.

APPLICATION:

As this product must be ingested, thorough spray coverage is essential. If rain falls shortly after treatment, re-treatment may be necessary. For best results time application to coincide with egg hatch and avoid day time spraying of DiPel SC during hot weather. Repeat treatments as indicated by regular crop checking. To obtain maximum assistance from beneficial insects, avoid use of broad spectrum insecticides during a programme of the above sprays. Ensure label recommendations for any product mixed with DiPel SC are followed when mixing with DiPel SC.

Ground Application: Apply in a minimum of 100L/ha to ensure good coverage.

Aerial ULV Application: Apply in a minimum total volume of 3L/ha. If necessary, use Ampol D-C-Tron spray oil to make up to this volume. Use constant agitation when tank mixing.

Aerial Low Volume Application: Apply in a minimum of 30L/ha for low volume aerial application.

COMPATIBILITY

DiPel SC is compatible with most insecticides and fungicides including most ULV formulations.

Any product formulated as an emulsifiable concentrate (EC) should only be used as an EC formulation not as a ULV when mixed with DiPel SC.

DO NOT apply as a tank mix with or within 2 days of application of alkaline products such as cupric hydroxide (Kocide), foliar nutrients (except for flowable Zintrac and zinc sulphate), liquid fertilizers or Bordeaux mixture.

PRECAUTIONS

DO NOT use human flagger/markers unless they are protected by engineering controls such as enclosed cabs.

DO NOT use ULV product for ground (handheld or rig) application

RE-ENTRY

DO NOT enter until the spray has dried. When prior entry is necessary, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing), chemical resistant gloves and a disposable mist/fume mask. Clothing must be laundered after each day's use.

PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS

DO NOT contaminate ponds, waterways or drains with the product or used containers. The empty container must not be re-used for any other purposes.

STORAGE AND DISPOSAL

Store in the original container, tightly closed in a safe well-ventilated area as cool as possible. DO NOT expose to extremes of temperature or to direct sunlight.

Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tanks. DO NOT dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

SAFETY DIRECTIONS

Avoid contact with eyes and skin. DO NOT inhale vapour or spray mist.

When opening the container, preparing spray and using the prepared spray, wear cotton overalls buttoned to the neck and wrist, a washable hat, elbow-length PVC gloves and a disposable mist mask covering mouth and nose. When using the prepared spray wear cotton overalls buttoned to the neck and wrist, a washable hat and elbow-length PVC gloves

After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use wash gloves and contaminated clothing.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre (phone 13 11 26).

MSDS

Additional information is listed in the Material Safety Data Sheet.

IMPORTANT NOTICE

These goods are to be used only for the purpose and as specified on the label, and are not suitable for any other purpose. To the fullest extent permitted by law, we do not accept or bear any liability on any basis for any loss, damage, cost or expense, arising in any way, directly or indirectly, in connection with the goods.

APVMA Approval No.: 52835/101012

THIS PRODUCT IS NOT CONSIDERED TO BE A DANGEROUS GOOD UNDER THE AUSTRALIAN CODE FOR THE TRANSPORT OF DANGEROUS GOODS BY ROAD OR RAIL	
In a Transport Emergency **Dial 000** Police or Fire Brigade	SPECIALIST ADVICE IN EMERGENCY ONLY ALL HOURS - AUSTRALIA WIDE **1800 024 973**

DIRECTIONS FOR USE:

CROP	PESTS	RATE	CRITICAL COMMENTS
Pulse crops and oilseed crops including: Adzuki beans Canola Chickpeas Faba Beans Field Peas Lentils Linola Linseed Lucerne Lupins Mungbeans Navybeans Pigeon Peas Safflower Soybeans Sunflower Vetch	Lepidopteran larvae susceptible to DiPel including: Armyworm *(Spodoptera* spp.*)* Cotton bollworm *(Helicoverpa armigera)* Native budworm *(Helicoverpa punctigera)* Cabbage moth *(Plutella xylostella)* Cabbage white butterfly *(Pieris rapae)* Green looper *(Chrysodeixis eriosoma)* Pear looper *(Ectropis excursaria)* Soybean looper *(Thysanoplusia orichalcea)* Tobacco looper *(Chrysodeixis argentifera)*	**1.0-4.0 L/ha** (refer to Application section for water volumes)	DiPel SC is a highly selective insecticide for use against the listed caterpillars (larvae) of lepidopterous insects. Close scouting and early attention to infestations is highly recommended. Larvae must eat deposits of DiPel SC to be affected. Close crop monitoring, timing of applications to the most susceptible pest life stage and thorough spray coverage of the crop are all essential to achieve an efficacious result. **Important Note: Users should not expect high levels of efficacy where the optimum conditions (see below) for use are not possible.** Users may need to consider alternative control methods where conditions are not optimal, or when pest pressure is high and where crops may be sensitive to damage. The suitability of DiPel SC as a control measure for each crop should be determined through consultation with local industry advisers, company representatives or small scale tests before treatment of a large area or number of plants begins. **CROP MONITORING:** Crops must be monitored regularly for lepidopteran eggs or first instar larvae (small caterpillar stage) to ensure applications can be made at the correct time. **APPLICATION TIMING:** Time the commencement of spraying to coincide with egg hatch or treat FIRST instar larvae and before damage to the plant occurs. Applications to later instar larvae or mixed populations of first and later instars are unlikely to produce acceptable levels of control. As larvae must ingest DiPel SC for it to be effective, application of DiPel SC must be made before larvae move into areas where the spray does not reach (ie sheltered positions such as bolls, pods, deep canopy). Application to crops where fruiting structures or dense canopies are present is therefore also not recommended unless good coverage is still possible and some level of crop damage can be tolerated. The activity of DiPel SC commences to decline immediately after application. Under continual pest pressure a minimum of 2 sprays separated by no more than 3 days initially, and then reapply at 3 –5 day intervals as required. Spray late in the afternoon or early evening (before dew begins to settle) when larvae are actively feeding. Reapplication after rainfall or overhead irrigation may be necessary. **SPRAY COVERAGE:** Thorough spray coverage is needed to provide a uniform deposit of DiPel SC at the site of larval feeding. Larvae must be actively feeding on treated, exposed plant parts. Ensure complete and thorough coverage of all plant surfaces. A non-ionic wetting agent such as Agral may need to be used on difficult to wet plants. **APPLICATION RATES:** Use the higher rates of DiPel SC for higher egg laying activity, longer residual or larger first instar larvae. Higher rates should also be used against Helicoverpa spp. Control of Helicoverpa is most effective if larvae are less than 8 mm long. Control of Spodoptera is most effective if larvae are less than 15 mm long. **GENERAL:** Larval control is only achieved when the larvae ingest DiPel SC and activation begins in the alkaline gut. Feeding ceases once the larvae ingest DiPel SC and death of treated larvae may take up to 3-5 days. Under low temperatures, when larvae are less actively feeding, control may be slower. DiPel SC is safe to beneficial arthropods and is best used in conjunction with these beneficial species (eg Trichogramma spp. parasitoids). To obtain maximum assistance from beneficial arthropods, avoid the use of broad spectrum insecticides before and during the use of DiPel SC. DiPel SC should be used in an Insecticide Resistance Management Strategy.
Sorghum			

CROP	PESTS	STATE	RATE	CRITICAL COMMENTS
Cotton	Bollworm *(Helicoverpa armigera)*, Native Budworm *(H. punctigera)*	NSW, Qld only	1 to 2L/ha 3 to 4L/ha	**Pre-Squaring Cotton** Apply DiPel SC alone in pre-squaring cotton. Use the 1L rate under egg pressure of up to 10 eggs/m and the 2L rate under egg pressures of up to 20 eggs/m. **Cotton – After Start of Squaring** Apply with 1.5 to 2.0L/ha D-C-Tron after start of squaring when egg pressures are less than 10 eggs/m and larvae are less than 8mm. Use higher rate of D-C-Tron with the higher rate of DiPel SC.
			1 to 2 L/ha + thiodicarb 175g a.c./ha	**Eggs and Hatching Larvae Only** Use the 1 L DiPel SC rate under egg pressures of up to 30 eggs/m. Use the 2 L DiPel SC rate under egg pressures of up to 30 eggs/m and hatching larvae present.
			1L/ha + thiodicarb 350g a.c./ha	Larvae up to 8 mm Use this mixture under egg pressures of up to 30 eggs/m and larvae up to 8mm present
			1.5 to 2L/ha + 1.7 to 2.5 L/ha Dominex 16ULV or 1.5 to 2L/ha + 460 to 800mL/ha Bulldock Duo	Use the lower rate of DiPel SC and Dominex 16ULV or Bulldock Duo when egg pressure is low (less than 10 eggs/m egg pressure), all larvae are less than 3 mm (very small category) and resistance levels are low. Use the higher rate of DiPel SC as resistance levels increase. Use higher rates of Dominex 16ULV or Bulldock Duo when egg pressure is higher and/or when larvae larger than 3mm are found.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

WITHHOLDING PERIOD:
WITHHOLDING PERIOD NOT REQUIRED WHEN USING DIPEL SC BIOLOGICAL INSECTICIDE ALONE.

ENSURE WITHHOLDING PERIODS FOR THIODICARB, DOMINEX 16ULV AND BULLDOCK DUO ARE FOLLOWED WHEN USING MIXTURES.