Barclay CROP PROTECTION

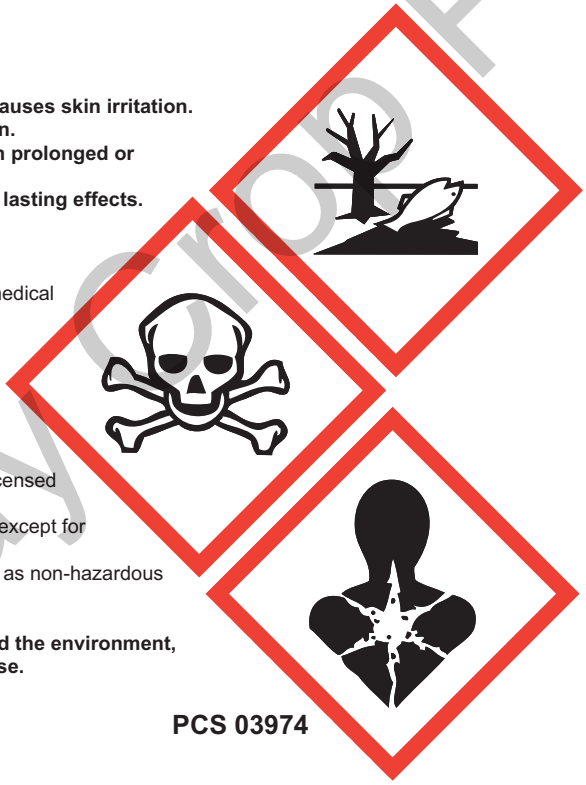
D-Quat®

For the desiccation of potato haulm, linseed, oilseed rape, peas harvested dry, field beans and weed growth in lodged barley and oats destined for stock feeding; for weed control in potatoes and all outdoor edible and non-edible crops (pre-emergence).

FOR USE ONLY AS AN AGRICULTURAL/HORTICULTURAL HERBICIDE AND DESICCANT
FOR PROFESSIONAL USE ONLY

SAFETY INFORMATION
Warning
Harmful if swallowed.
Fatal if inhaled.
May cause respiratory irritation. Causes skin irritation.
May cause an allergic skin reaction.
Causes damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life with long lasting effects.
Keep out of reach of children.
Do not breathe dust/fume/gas/mist/vapours/spray.
If skin irritation or rash occurs: Get medical advice/attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Immediately call a POISON CENTER or doctor/physician.
Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for triple rinsed empty clean containers which can be disposed of as non-hazardous waste.

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



PCS 03974

Contains diquat; may produce an allergic reaction

Contains 200 g/l (16.7% w/w) diquat as the dibromide salt in a soluble concentrate

Manufacturer:
Barclay Chemicals Manufacturing Ltd.,
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Website: www.barclay.ie

Approval Holder:
Barclay Chemicals (R&D) Ltd,
Contact details as above.

PROTECT FROM FROST

PRECAUTIONS

Wash concentrate from skin or eyes immediately.
Take off immediately all contaminated clothing.
Wash all protective clothing thoroughly after use, especially the insides of gloves.
When using do not eat, drink or smoke.
Wash hands and exposed skin before eating and drinking and after work.
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.
Harmful to livestock. Keep all livestock out of treated areas for at least 24 hours after treatment.
Keep in original container, tightly closed, in a safe place.
Do not re-use container for any purpose.

Safety data sheet available for professional user on request.

In case of emergency contact the Poisons Information Center Tel: +353 1 8092566 or +353 1 8379964

IMPORTANT INFORMATION

FOR USE ONLY AS AN AGRICULTURAL/HORTICULTURAL HERBICIDE AND DESICCANT			
Crop or situation	**Maximum single dose of product**	**Maximum total dose of product**	**Latest time of application**
For crop desiccation			
Potato, seed and ware crops	4 l/ha	5 l/ha per crop*	-
Combining pea Field bean Linseed Oilseed rape	3 l/ha	3 l/ha per crop*	-
Barley, for animal feed Oats, for animal feed	4 l/ha	4 l/ha per crop*	-
Herbicidal use			
All outdoor edible and non-edible crops except potatoes –see under	2 l/ha	2 l/ha per crop	Before crop emergence, drilling or transplanting.
Potatoes	2 l/ha	2 l/ha per crop*	Early crops: up to 10% emergence Main crops: up to 40% emergence
Between the rows of outdoor row crops	2 l/ha	2 l/ha per crop	-

*** Total Dose of Barclay D-Quat (desiccant plus herbicidal use) must not exceed 5 l/ha on any potato crop**

*** Total Dose of Barclay D-Quat (desiccant plus herbicidal use) must not exceed 3 l/ha on any of the following crops combining pea, Field bean, Linseed, Oilseed rape**

*** Total Dose of Barclay D-Quat (desiccant plus herbicidal use) must not exceed 4 l/ha on any of the following crops Barley and Oats for animal feed.**

DIRECTIONS FOR USE

DESICCATION OF POTATO HAULM	
Cultural considerations	Desiccate the haulm when the tubers have grown to the required size or upon other management criteria being reached. **Pre harvest interval** Wait at least 14 days after completion of spraying before lifting to allow the skins to set, most particularly if blight is present. See SOIL MOISTURE See POTATO VARIETIES
Time of application & spraying recommendations	Desiccate the haulm employing either a single spray or two sprays 5-7 days apart. The two spray method may be preferred when the haulm and/or weed growth is dense. Achieve good spray cover of haulm and weeds by ensuring accurate spraying machine set-up and by employing a spray volume matched to the density of the vegetation. Ideally spray under bright conditions with low humidity. DO NOT spray if light rain, mist or heavy dew is present or expected as this may cause crop damage. <u>Single spray</u> Spray evenly over the crop and weeds when all conditions are judged suitable. <u>Two spray method</u> Apply the *first* spray when all conditions are judged suitable with the aim of causing substantial dieback of the haulm. Use a higher dose where the crop is more vigorous or has yet to start senescing. Apply the *second* spray about 5-7 days after the first spray when substantial haulm dieback should have occurred thus allowing more complete penetration of the second spray to the lower stem surfaces.
Rate of application	DO NOT add any wetting agent or other adjuvant to any spray. <u>Single spray</u> 4 litres in 200-400 litres water/ha. <u>Two spray method</u> The total dose must not exceed 5 l/ha. *First spray* 1-2 litres in at least 200 litres water/ha. *Second spray* 2-4 litres in at least 200 litres water/ha.

Soil moisture

Desiccation of potatoes whilst under moisture stress may cause tuber damage primarily observed as a brown staining of the vascular ring, commonly referred to as "ringing", just below the skin.

MORECS is the Meterological Office Rainfall and Evaporation Calculation System and should be used to identify periods of high soil moisture stress. MORECS gives a calculated Soil Moisture Defecit (SMD).

Barclay D-Quat MUST NOT be applied when Soil Moisture Deficits (SMD) are in excess of those in the following table unless the specified amounts of rain or irrigation have been received or applied within the specified time scale.

Soil Texture (85 System)	**Minimum Rain or Irrigation requirement**	**OR Maximum Permissible Soil Moisture Deficit**		
		Early or seed crop	Canning crop	Ware crop*
Sands Very light soils Light soils All stony soils (including stony medium and stony heavy soils)	13 mm within 2 days before spraying. Soil must be moist at tuber depth.	32 mm	Do not use.	50 mm
Medium soils Heavy soils	13 mm within 5 days before spraying. Soil must be moist at tuber depth.	50 mm	Do not use.	64 mm
Organic soils (>10% OM) Peaty soils Peats Peaty loams	13 mm within 5 days before spraying. Soil must be moist at tuber depth	64 mm	50 mm	83 mm

* If ware crops are immature or show excess vigour at the time of spraying, treat them as though an Early/Seed Crop.

Before any or each application of Barclay D-Quat all areas of the field must be physically examined and the soil must be judged as moist before the treatment may be applied. The soil may be judged moist and the crop suitable for treatment if the soil within 5 cm of all tubers, including the deepest tubers, is moist. Seek professional advice in cases of doubt.

Potato varieties

The haulm of all varieties of potato may be desiccated with Barclay D-Quat, but it is important to ensure that the conditions specified under SOIL MOISTURE are followed when treating any variety, especially the less drought tolerant varieties.

Use of wetters or other adjuvants

DO NOT add a wetter or other adjuvant for the desiccation of potato haulm.

OTHER CROP DESICCATION USES

Important: Crops must be at the recommended stage of maturity at the time of treatment as desiccation does not advance maturity, but acts as a harvesting aid only. Desiccation too early may lead to pinched samples of low specific weights and reduced germination.

DESICCATION OF OILSEED RAPE (prior to direct combining)	
Cultural considerations	Treatment of uneven, diseased or thin crops is not recommended, especially if grown in exposed fields, as losses due to shattering may be excessive. Direct combine the crop 7-14 days after spraying as soon as the seed moisture content is 12-15%.
Time of application & spraying recommendations	Desiccate when 90% of the pods in the middle section of the stem of erect crops are yellow and the seed within is reddish/dark brown. The seed of the lower pods will appear dark brown/black, whilst the seed of the uppermost pods will be turning in colour with up to half the seeds still of green appearance. If the crop is leaning, desiccate when the seed in the exposed surface pods is reddish/dark brown and the seed in the majority of the underlying pods is turning in colour. Correct timing is essential for best results; premature desiccation may reduce yield and sample quality, whilst delayed desiccation may lead to excessive pod shatter. Spray once only and achieve good cover of the pods.
Rate of application	3 l/ha in 200-500 l/ha water. Add an authorised alcohol ethoxylate adjuvant (not an organo-silicone) at its recommended rate. Use the higher water volumes for dense growth, in particular for tall or lodged crops.

DESICCATION OF DRY HARVEST PEAS	
Cultural considerations	Correct timing is essential for best results; premature desiccation may reduce yield and sample quality and/or lead to collapse of the haulm, whilst desiccation too late may annul the timeliness advantages of desiccation and add to the risk of shattering of the earliest pods. *Consult the processor before treating a crop grown on contract.*
Time of application & spraying recommendations	Desiccate when the crop is mature with an overall seed moisture content of less than 45%. At this stage the pods in the middle section of the stem are yellow and the seed within is firm, whilst the upper pods are beginning to dry out or to turn yellow and the seed within splits under light finger pressure. Bottom pods are yellow/brown with seeds within quite hard. Spray once only and achieve good cover of the haulm. Direct combine 7-10 days after spraying.
Rate of application	Average conditions: 2 l/ha Dense or weedy crops: 3 l/ha Apply in 200-500 l/ha water. Consult the processor before adding any wetter or adjuvant for peas for processing for human consumption. Treated haulm may be fed to livestock from 4 days after spraying.

DESICCATION OF FIELD BEANS	
Time of application & spraying recommendations	Desiccate when the crop is mature and the pods are brown/black and leathery. Direct combine 7-10 days later.
Rate of application	3 l/ha in 200-500 l/ha water. Add an authorised alcohol ethoxylate adjuvant (not an organo-silicone) at its recommended rate.

DESICCATION OF LODGED BARLEY AND OATS **(for stock feeding only)**	
Time of application & spraying recommendations	Spray when the crop is normally mature for combining. Combine as soon as practicable after complete desiccation, provided that 4 days have elapsed since spraying. Delay in harvesting may result in re-growth of grass weeds.
Rate of application	Most situations: 3 l/ha Dense weed growth or when cleavers or common couch are dominant: 4 l/ha Apply in 200 l/ha water with an authorised alcohol ethoxylate adjuvant (not an organo-silicone) at its recommended rate. Treated grain and straw may be safely fed to livestock from 4 days after spraying. TREATED BARLEY AND OATS must be used for stock feed only.

DESICCATION OF LINSEED	
Time of application & spraying recommendations	Desiccate when 95% of the capsules are brown and the seed is loose within. Direct combine 10-20 days after spraying when seed moisture is below 14 %. Always use a sharp knife on the combine and cut the crop as high as possible, just below the level of branching of the capsule clusters of the shortest stems. Aim to combine in bright sunny conditions or when there is a drying wind.
Rate of application	3 l/ha Apply in 300-500 l/ha water with an authorised alcohol ethoxylate adjuvant (not an organo-silicone) at its recommended rate.

WEED CONTROL USES - **To control common chickweed at up to 4 leaf stage.**		
Situation	**Timing, cultural & spraying recommendations**	**Rate of application**
Potatoes	Complete the post-planting cultivations by forming firm, rounded ridges. Spray overall before 10% emergence of early crops or before 40% emergence of main crops or before any potato plants are 15cm high. Do not treat crops grown from very small or diseased seed, or under hot, dry conditions.	2 l/ha in 200-500 l/ha water with an authorised alcohol ethoxylate adjuvant (not an organo-silicone) at its recommended rate.
To control common chickweed pre-emergence or pre-planting of all outdoor edible and non-edible crops except potatoes.	Prepare the seedbed in the usual way and allow weeds to emerge. Then EITHER: spray the weedy seedbed and drill or plant not less than 24 hours later with as little soil disturbance as possible; OR: drill the weedy seedbed and spray just before the crop emerges. *Important: spraying must precede drilling or planting on SANDS* and PEATS* by at least 3 days.*	
	<u>Ornamental bulbs</u> Spray whilst the shoots are 12 mm below the soil surface. Do not use on SANDS*.	
To control common chickweed between the rows of outdoor row crops	Spray whilst weeds are still small. Use a sprayer with guards to prevent contact between spray and crop.	
* Soil Texture (85 System)		

FURTHER INSTRUCTIONS AND INFORMATION FOR ALL USES

This product is to be used only in accordance with the Directions for Use and instructions given on the label provided with this pack. Use in any other circumstances is entirely at the risk of the user.

Weather

Barclay D-Quat is rainfast within 15 minutes of application; rainfall after this period will not reduce crop effectiveness.

Mixing

Half fill the spray tank with clean water (clean water is essential) and start the re-circulation system. Pour the required quantity of Barclay D-Quat into the spray tank. Top up the spray tank with more clean water to the required level. Agitate thoroughly before use.
RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times. Add washings to sprayer at time of filling and dispose of safely.

Application (BCPC definitions)

Apply as a MEDIUM spray at 2-3 bar (30-45 psi) by conventional hydraulic ground-operated sprayer. Operate equipment to achieve maximum spray cover of the intended target crop and/or weeds. DO NOT apply through ultra low volume (ULVA) or mistblower equipment. Take extreme care to avoid spray drift. Do not leave mixed spray standing in the spray tank for long periods e.g. over mealtimes.
Do not use with a knapsack sprayer.

Weed resistance

Diquat is a bipyridilium group herbicide. Strains of annual meadow-grass and American willowherb resistant to bipyridilium herbicides have been found in top and soft fruit orchards. Barclay D-Quat may not give full control of these weeds where such resistant strains of weeds occur.

Care of sprayer

Immediately after each days use with Barclay D-Quat, wash out the sprayer thoroughly with clean water and a wetting agent recommended for the cleaning of sprayers, according to standard cleaning procedures.