WARNINGS

- Allow 85 days between application and harvest of the crop.
- Handle with care.
- Poisonous when swallowed.
- Store in a cool place away from food, feeds and seed.
- Keep out of reach of children, uninformed persons and animals.

Aerial application:
- Notify all inhabitants of the immediate area to be sprayed and issue the necessary warnings.
- Do not spray over or allow drift to contaminate adjacent areas or water bodies.

Although this remedy has been extensively tested under a large variety of conditions, the registration holder does not warrant that it will be efficacious under all conditions, because the action and effect thereof may be affected by factors such as abnormal soil-, climatic- and storage conditions, quality of dilution water, compatibility with other substances not indicated on the label and the occurrence of resistance of weeds against the remedy concerned, as well as by the method, time and accuracy of application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation, the environment, harm to man or animal, or for lack of performance of the remedy concerned, due to failure of the user, to follow the label instructions, or to the occurrence of conditions, which could not have been foreseen in terms of the registration. Consult the supplier in the event of any uncertainty.

PRECAUTIONS

- Do not inhale spray mist.
- Wash with soap and water after use and accidental skin contact.
- Do not eat, drink or smoke while mixing or spraying, unless having washed hands and face.
- Do not allow spray drift onto / or spraying of other crops, grazing, rivers, dams and any area not under treatment.
- Do not allow food, feedstuffs, drinking water and eating utensils to be contaminated.
- TRIPLE RINSE empty container in the following manner: Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to a minimum of 10 % of that of the container.
- Add the rinsings to the contents of the spray tank, before destroying the container by perforation, flattening and burying and never re-use for any other purpose.
- Wash and rinse spray equipment thoroughly after use and dispose of wash-water where it will not contaminate crops, grazing, rivers and dams.

RESISTANCE WARNING

For resistance management, Hammer® is a HRAC Group Code B Herbicide. Any weed population may contain individuals naturally resistant to Hammer® and other Group Code B herbicides. The resistant individuals can eventually dominate the weed population, if these herbicides are used repeatedly and exclusively in programmes. These resistant weeds may not be controlled by Hammer® or any other group code B herbicide.

To delay herbicide resistance:
- Avoid exclusive repeated use of herbicides from the same Herbicide Group Code. Alternate or tank-mix with products from different Herbicide Group Codes.
- Integrate other control methods (chemical, cultural, biological), into weed control programmes.
FOR SPECIFIC INFORMATION ON RESISTANCE MANAGEMENT, CONTACT THE REGISTRATION HOLDER, BASF SA (Pty) Ltd.

USE RESTRICTIONS

- Do not apply Hammer® to acid soils with pH (KCl) below 5.
- Do not use the post-emergent treatment on soils below 15% clay.
- Do not apply more than 700 ml/ha Hammer® on a land per season.
- When Hammer® is applied post-emergent to the crop, the crop may be treated at any time after the full emergence of the third trifoliate leaf, but before flowering.
- Avoid the post-emergent application of Hammer® to plants stressed in any way, by factors such as drought, nematode infestations, diseases, nutritional deficiencies or plants put under stress, by prior use of other herbicides.
- **DO NOT** apply Hammer as a post-emergent treatment to the soya bean, PAN 717 cultivar.
- If a deep cultivation is required to aerate the soil BEFORE the post-emergent application has been made, Hammer® can be applied immediately after the cultivation or any time up to 14 days after this cultivation, provided the crop has not started flowering. Further shallow cultivations may be carried out.

WAITING PERIOD FOR FOLLOW-UP CROPS

- To avoid possible damage to follow-crops, the waiting periods as indicated below should lapse after the last application of Hammer® and the planting of the follow crop.
- However, the waiting periods mentioned here will only be valid if:
  - the standard, recommended Hammer® rate for the soil type was applied, and
  - at least 350 mm of well distributed rainfall and/or irrigation was recorded, which was enough to ensure a reasonable field legume harvest.
  - This rain or irrigation must have occurred after the application of Hammer® and prior to the planting of the follow-crop.
- When the higher rate was used to control Tribulus terrestris, the safety periods mentioned in the table below must be extended by a further 12 months, to at least 20 months, before a Hammer®-sensitive crop can be planted with relative safety.
- The land should always be deep ploughed before planting a follow-crop.
- Test planting is nevertheless recommended.
- See **TABLE 5** for maize cultivars to be used.

<table>
<thead>
<tr>
<th>CROP</th>
<th>WAITING PERIOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry beans, soya beans and groundnuts</td>
<td>None</td>
</tr>
<tr>
<td>Any other legume crop (other than dry beans, soya beans or groundnuts)</td>
<td>10 months</td>
</tr>
<tr>
<td>Wheat</td>
<td>6 months</td>
</tr>
<tr>
<td>All other crops (including popcorn &amp; sweetcorn)</td>
<td>24 months</td>
</tr>
<tr>
<td>Maize</td>
<td>20 months, but depending on the following factors and their inter-relationship, waiting period may be shorter. • soil type, • rainfall or irrigation, • application rate used, • maize variety to be planted Contact the supplier for further information.</td>
</tr>
</tbody>
</table>
DIRECTIONS FOR USE:  

USE ONLY AS DIRECTED

General information:
- **Hammer**® can be used either **PRE-EMERGENT** or **POST-EMERGENT** of weeds and the crop.
- It is preferable that about 10 mm rain should fall within seven days after a pre-emergent application in order to move the **Hammer**® into the top layer of the soil, where it can be absorbed by roots of germinating weeds.
- Internode shortening and / or temporary yellowing of the crop may occasionally occur, especially when heavy rains (more than 15 mm / h) should fall shortly after a post-emergent application of **Hammer**®. These effects can be more pronounced if crops are growing under any stressful environmental conditions. Normal growth and appearance will resume within one - two weeks. No adverse affect on the yield has been recorded.
- If dry weather conditions should prevail for a period of more than seven days after application, weeds may germinate and grow. When this happens, a shallow cultivation / surface blend (3 - 5 cm) should follow to control weeds and to incorporate the herbicide into the top layer of the soil. The same shallow cultivation may be necessary when heavy rains fall within a few hours of an application of **Hammer**® as the post-emergent efficacy of **Hammer**® may be reduced, resulting in poorer weed control. Such a cultivation should not influence the residual efficacy of **Hammer**®.
- If heavy rains should fall on sandy soils within a few days after a pre-emergent application, the **Hammer**® could move out of the region where the weeds germinate, resulting in poor weed control.
- Susceptible weeds will stop growing within two - three days after the post-emergent application of **Hammer**®. Over the next 10 - 14 days these weeds will begin yellowing and after three to five weeks will either die or will not be competitive with the crop. Weeds will germinate after the pre-emergent application of **Hammer**®, but the susceptible weeds will soon show yellowing and growth will stop.
- For increased weed control of especially **Tagetes minuta**, a shallow surface blend or inter-row cultivation of less than 5 cm deep should be carried out at least once, before the crop canopies. Ensure cultivation is not too deep, as optimum control of weeds may not be achieved and further cultivations will be required.
- In lands where especially high weed populations were treated, the control of late season weeds may appear to be unacceptable. This can be attributed to the interception of the herbicide by the dense weeds and crop canopy, resulting in insufficient herbicide reaching the soil, for the residual control of late germinating weeds.
- Ensure thorough coverage and wetting of the weeds, especially when crop foliage is dense.

Compatibility:
- **Hammer**® is compatible with most commonly used pyrethroids such as **Fastac**® SC and **Fastac**® EC (L4992 & L4991) as well as with **Butisan**® S (L2449), **Frontier**® Optima (L7011), acetochlor, alachlor and metolachlor, at their recommended dosages.
- **Hammer**® is compatible with a flowable (50 %) high quality ammonium sulphate and a wetter / spreader.
- **Hammer**® is not compatible with post-emergent grass herbicides, due to conflicting modes of action.
- **Hammer**® is used in conjunction with any other agrochemical, full cognisance must be taken of all WARNINGS, PRECAUTIONS and DIRECTIONS FOR USE mentioned on those labels.

Mixing instructions:
- Three-quarter fill the spray tank with clean water.
- The use of a registered buffering agent is recommended, where water with a pH > 8 is to be used for spraying.
- Shake the **Hammer**® container well, measure out the required volume and pre-mix this with at least 10 l water, before adding to the spray tank. If any other product is to be mixed with **Hammer**®, pre-mix the required volume of product in similar fashion.
- Fill the spray tank with water to the required level, while maintaining agitation, to ensure thorough mixing of the spray mixture, before spray commences. Maintain agitation while spraying.
- For post-emergent spraying, add a wetter / spreader and a flowable (50 %) high quality ammonium sulphate to the spray tank. The required amount of both these products must first be pre-mixed with at least 10 l water, before adding to the spray tank.
- The prepared spray mixture must not be left in the spray tank for any length of time, e.g. overnight.
Soil nutrient status:
- Ensure that all plant nutrients are at optimum levels (even in regions of relatively low cropping potential), by always carrying out timeous soil fertility analyses and correcting any major or minor nutrient deficiencies.
- This applies particularly to soil phosphate levels that should be at least 20 – 25 ppm.

Aerial application:
Aerial application of Hammer®, may only be done by a registered aerial application operator using a correctly calibrated, registered aircraft according to the instructions of SANS Code 10118 (Aerial Application of Agricultural Pesticides). Ensure that the spray mixture is distributed evenly over the target area and that the loss of spray material during application is restricted to a minimum. It is therefore essential that the following criteria be met:
- **Volume**: A spray mixture volume of 30 l per hectare is recommended. As this product has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy, or be held responsible for any adverse effects if this product is applied aerially at a lower volume rate than recommended above.
- **Droplet coverage**: The following number of droplets per cm² must be recovered at the target area:
  - **Pre-emergent**: 20 – 30 and **Post-emergent**: 35 – 45.
- **Droplet size**: The following droplet spectrum is recommended:
  - **Pre-emergent**: VMD of 350 - 400 micron and **Post-emergent**: VMD of 300 – 350 micron. Limit the production of fine droplets less than 150 micron (high drift and evaporation potential) to a minimum.
- **Flying height**: Maintain the height of the spray boom at 3 - 4 metre above the target. Do not spray when aircraft dives, is in a climb or when banking.
- Use suitable atomising equipment that will produce the desired droplet size and coverage, but which will ensure the minimum loss of product. The spraying system must produce a droplet spectrum with the lowest possible Relative Span.
- Position all the atomisers within the inner 60 - 75% of the wingspan to prevent droplets from entering the wingtip vortices.
- The difference in temperature between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8 °C.
- Stop spraying if the wind speed exceeds 15 km / h.
- Stop spraying under turbulent, unstable and dry conditions during the heat of the day.
- Spraying under temperature inversion conditions (spraying in or above the inversion layer) and / or high humidity conditions (relative humidity 80 % and above) may lead to the following:
  - reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage),
  - damage to other sensitive crops and / or non-target areas through drifting of the suspended spray cloud away from the target field.
- Ensure that the aerial spray operator knows exactly which fields to spray.
- Obtain an assurance from the aerial spray operator that the above requirements will be met and that relevant data will be compiled in a logbook and kept for future reference.
DRY BEANS *(Phaseolus vulgaris & Phaseolus coccineus)*

(a) A single **PRE-EMERGENT APPLICATION**, OR

(b) A programme **PRE-EMERGENT followed by a POST-EMERGENT APPLICATION**.

<table>
<thead>
<tr>
<th>% CLAY</th>
<th>PRE-EMERGENT APPLICATION</th>
<th>The POST-EMERGENT „FOLLOW-UP“ TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RATE / HA</td>
<td>RATE / HA</td>
</tr>
<tr>
<td>0 – 15</td>
<td>300 mℓ</td>
<td>On this soil type a „follow-up“ treatment is not recommended</td>
</tr>
<tr>
<td>16 – 25</td>
<td>(a) 400 mℓ OR</td>
<td>300 mℓ + 4 ℓ / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader.</td>
</tr>
<tr>
<td></td>
<td>(b) 400 mℓ followed by</td>
<td></td>
</tr>
<tr>
<td>26* – 30</td>
<td>(a) 500 mℓ OR</td>
<td>300 mℓ + 4 ℓ / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader.</td>
</tr>
<tr>
<td></td>
<td>(b) 400 mℓ followed by</td>
<td></td>
</tr>
</tbody>
</table>

*If a follow-up treatment of **Hammer** is intended on soils with more than 26 % clay, do not exceed 400 mℓ / ha as a pre-emergent treatment.

**COMMENTS**

Apply **Hammer** as a pre-emergent (to crop and weeds) treatment, onto a well-prepared seedbed, with an even surface and free of clods.

**Ground application:** With boom and nozzle:

Apply the prescribed dosage by means of a suitable ground applicator, in at least 200 ℓ of water / ha as an overall application, to the soil, during or soon after planting.

For increased grass control, **Hammer** can be mixed with:

- A registered pre-emergent grass herbicide, at its registered rate.

**OR**

- **Stomp** (L1686) can be applied and incorporated (label rate for grass control only), before the application of **Hammer** at rates indicated above.

See **Tables:** 1 and 2 below, for a list of weeds controlled by **Hammer** applied in this manner.

**COMMENTS**

The ”Followed by” treatment:

To improve control of late-season broadleaf weeds (especially *Tagetes minuta*), a ”Followed by” treatment can now be applied after a pre-emergent application of **Hammer**.

**Ground application:** with boom and nozzle:

Apply the prescribed dosage of **Hammer** by means of a suitable ground applicator, in at least 200 ℓ of water / ha, as an overall application in a tank mixture, with 4 ℓ / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader.

Apply this treatment 2 - 3 weeks after the **Hammer** pre-emergent application.

This post-emergent application can only be used on the following dry bean cultivars: PAN 148, Kranskop, Sabie, Helderberg, Teebus and Kamberg.

**CAUTION:** Compact row crops, with high plant populations, will intercept spray droplets, resulting in reduced spray deposition on weeds and soil. This may result in lowered efficacy. Correctly placed drop-arm nozzles will help to alleviate this problem.

See **Tables:** 3 and 4 below, for a list of weeds controlled by **Hammer** applied in this manner.

**Aerial application:**

Apply as for **Ground application** above in at least 35 ℓ water / ha. Refer to **Aerial application** under DIRECTIONS FOR USE above.

**Please Note:** application recommendations for pre- and post-emergent treatments differ, depending on climatic conditions.
GROUNDNUTS

(a) A single **PRE-EMERGENT APPLICATION**, OR
(b) a single **POST-EMERGENT APPLICATION**  [a follow-up treatment is not recommended].

<table>
<thead>
<tr>
<th>% CLAY</th>
<th>PRE-EMERGENT</th>
<th>POST-EMERGENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RATE / HA</td>
<td>RATE / HA</td>
</tr>
<tr>
<td>0 – 15</td>
<td>300 ml</td>
<td>Not recommended</td>
</tr>
<tr>
<td>16 – 25</td>
<td>400 ml</td>
<td>700 ml + 4 l / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader.</td>
</tr>
<tr>
<td>26 – 30</td>
<td>500 ml</td>
<td>Not recommended</td>
</tr>
<tr>
<td></td>
<td></td>
<td>700 ml + 4 l / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader.</td>
</tr>
</tbody>
</table>

• **Hammer®** can be applied as **either** a pre- or a post-emergent treatment.
• A follow-up treatment, similar to dry beans and soya, is not recommended.

**COMMENTS**

**Ground application:** With boom and nozzle:

Apply the prescribed dosage, by means of a suitable ground applicator, in at least 200 l of water / ha, as an overall application to the soil, during or soon after planting.

In areas where **Tribulus terrestris** is a problem, a pre-emergent application of 450 ml - 500 ml / ha, must be used. **Warning:** This higher dosage rate may result in **Hammer®** remaining active longer in lighter soils (where carry over to the following season is possible).

For increased grass control, **Hammer®** can be mixed with:
• A Registered pre-emergent grass herbicide, at its registered rate,
OR
• **Stomp®** can be applied and incorporated (label rate for grass control only), before the application of **Hammer®** at rates indicated above.

See **TABLES:** 1 and 2 below, for a list of weeds controlled by **Hammer®** applied in this manner.

**COMMENTS**

**Ground application:** With boom and nozzle:

Apply the prescribed dosage of **Hammer®** by means of a suitable ground applicator in at least 200 l of water / ha as an overall application in a tank mixture with 4 l / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader.

**CAUTION:** Compact row crops with high plant populations will intercept spray droplets resulting in reduced spray deposition on weeds and soil. This may result in lowered efficacy. Correctly placed drop-arm nozzles will help to alleviate this problem.

See **TABLES:** 3 and 4 below, for a list of weeds controlled by **Hammer®**.

**Aerial Application:** Apply as for **Ground application** above, in at least 35 l water / ha. Refer to **Aerial application** under **DIRECTIONS FOR USE** above.

**Please Note:** application recommendations for pre- and post-emergent treatment differ, depending on climatic conditions.
**SOYA BEANS**

(a) A single **PRE-EMERGENT APPLICATION**, OR
(b) a programme **PRE-EMERGENT** followed by a **POST-EMERGENT APPLICATION**, OR
(c) a single **POST-EMERGENT APPLICATION**.

<table>
<thead>
<tr>
<th>% CLAY</th>
<th>PRE-EMERGENT APPLICATION</th>
<th>POST-EMERGENT “FOLLOW-UP” TREATMENT</th>
<th>POST-EMERGENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RATE / HA</td>
<td>RATE / HA</td>
<td>RATE / HA</td>
</tr>
<tr>
<td>0 – 15</td>
<td>300 ml</td>
<td>On this soil type, a “follow-up” treatment is not recommended</td>
<td>Not recommended</td>
</tr>
<tr>
<td>16 – 25</td>
<td>(a) 400 ml OR (b) 400 ml followed by</td>
<td>300 ml + 4 l / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader.</td>
<td>700 ml + 4 l / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader.</td>
</tr>
<tr>
<td>26* – 30</td>
<td>(a) 500 ml OR (b) 400 ml followed by</td>
<td>300 ml + 4 l / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader.</td>
<td>700 ml + 4 l / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader.</td>
</tr>
</tbody>
</table>

*If a follow-up treatment of Hammer® is intended on soils with more than 26 % clay, do not exceed 400 ml / ha, as a pre-emergent treatment.*

**COMMENTS**

Apply Hammer® as a pre-emergent (to crop and weeds) treatment, onto a well-prepared seedbed, with an even surface and free of clods.

**Ground application:** With boom and nozzle.

Apply the prescribed dosage by means of a suitable ground applicator, in at least 200 l of water / ha as an overall application, to the soil, during or soon after planting.

For increased grass control, Hammer® can be mixed with:
- A registered pre-emergent grass herbicide, at its registered rate, OR
- Stomp® (L1686) can be applied and incorporated (label rate for grass control only) before the application of Hammer® at rates indicated above.

See **TABLES: 1 and 2** below, for a list of weeds controlled by Hammer® applied in this manner.

**COMMENTS**

To improve control of late-season broadleaf weeds (especially *Tagetes minuta*), a ‘Followed by’ treatment can now be applied after a pre-emergent application of Hammer®.

**Ground application:** with boom and nozzle:

Apply the prescribed dosage of Hammer® by means of a suitable ground applicator, in at least 200 l of water / ha, as an overall application, in a tank mixture with 4 l / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader. Apply this treatment 14 – 25 days after the Hammer® pre-emergent application.

This post-emergent application, can be used on all soya bean varieties, except PAN 717.

**CAUTION:** Compact row crops with high plant populations, will intercept spray droplets, resulting in reduced spray deposition on weeds and soil. This may result in lowered efficacy. Correctly placed drop-arm nozzles, will help to alleviate this problem.

See **TABLES: 3 and 4** below, for a list of weeds controlled by Hammer® applied in this manner.

**COMMENTS**

Apply this treatment as a post-emergent application, where circumstances prohibited the pre-emergent use of Hammer®. Apply 14 – 25 days after the crop has been planted. This will usually be when most of the weeds are 3 – 6 cm tall (1 – 3 leaf stage).

**Ground application:** With boom and nozzle.

Apply the prescribed dosage of Hammer® by means of a suitable ground applicator, in at least 200 l of water / ha, as an overall application, in a tank mixture with 4 l / ha of a flowable (50 %) high quality ammonium sulphate + a wetter / spreader.

The recommended rate of Hammer® should follow the application of a registered pre-emergent grass herbicide.

**CAUTION:** Compact row crops with high plant populations, will intercept spray droplets, resulting in reduced spray deposition on weeds and soil. This may result in lowered efficacy. Correctly placed drop-arm nozzles, will help to alleviate this problem.

See **TABLES: 3 and 4** below, for a list of weeds controlled by Hammer® in this manner.

**Aerial application:** Apply as for **Ground application** above, in at least 35 l water / ha. Refer to **Aerial application** under **DIRECTIONS FOR USE** above.

**Please Note:** application recommendations for pre- and post-emergent treatment differ, depending on climatic conditions.
TABLE 1: WEEDS NORMALLY CONTROLLED BY Hammer® WHEN APPLIED PRE-EMERGENT

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acanthospermum hispidum</td>
<td>Upright starbur</td>
<td>Amaranthus thunbergii</td>
<td>Red pigweed</td>
</tr>
<tr>
<td>Amaranthus deflexus</td>
<td>Perennial pigweed</td>
<td>Chenopodium album</td>
<td>White goosefoot</td>
</tr>
<tr>
<td>Amaranthus hybridus</td>
<td>Common pigweed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 2: Hammer® (APPLIED PRE-EMERGENT) ON ITS OWN, PROVIDES VARIABLE CONTROL (75% – 80%) OF THE FOLLOWING WEEDS

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commelina benghalensis</td>
<td>Wandering jew</td>
<td>Galinsoga parviflora</td>
<td>Quick weed</td>
</tr>
<tr>
<td>Cyperus esculentus</td>
<td>Yellow nutsedge</td>
<td>Portulaca oleracea</td>
<td>Common purslane</td>
</tr>
<tr>
<td>Cyperus rotundus</td>
<td>Purple nutsedge</td>
<td>Tagetes minuta</td>
<td>Khaki weed</td>
</tr>
<tr>
<td>Datura ferox</td>
<td>Common thorn apple</td>
<td>Tribulus terrestris (1)</td>
<td>Common dubbeltjie</td>
</tr>
<tr>
<td>Datura stramonium</td>
<td>Large thorn apple</td>
<td>Xanthium strumarium</td>
<td>Cocklebur</td>
</tr>
</tbody>
</table>

• When Hammer® is used in combination with Butisan® S, acetochlor, alachlor, Frontier® Optima, Stomp®, or metolachlor, in either a tank mixture or as a split application, control of the above weeds will be increased (refer also to the relevant product label for weeds controlled by that product).

(1) In areas where Tribulus terrestris is a problem, a dosage rate of at least 450 ml/ha may be used, as a pre-emergent treatment, irrespective of soil type, which will result in control of greater than 80%. This higher dosage rate for certain soils may, however, influence the waiting periods for follow crops. See USE RESTRICTIONS above.

TABLE 3: WEEDS CONTROLLED BY Hammer® (APPLIED POST-EMERGENT) WHEN PRECEDEED BY A REGISTERED PRE-EMERGENT GRASS HERBICIDE (WHICH INCLUDES A Hammer® PRE-EMERGENT TREATMENT)

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acanthospermum australe</td>
<td>8 Seeded prostrate starbur</td>
<td>Datura ferox</td>
<td>Large thorn apple</td>
</tr>
<tr>
<td>Acanthospermum glabratum</td>
<td>5 Seeded prostrate starbur</td>
<td>Datura stramonium</td>
<td>Common thorn apple</td>
</tr>
<tr>
<td>Acanthospermum hispidum</td>
<td>Upright starbur</td>
<td>Flaveria bidentis</td>
<td>Smelter’s bush</td>
</tr>
<tr>
<td>Amaranthus deflexus</td>
<td>Perennial pigweed</td>
<td>Galinsoga parviflora</td>
<td>Gallant soldier</td>
</tr>
<tr>
<td>Amaranthus hybridus</td>
<td>Common pigweed</td>
<td>Nicandra physaloides</td>
<td>Apple of Peru</td>
</tr>
<tr>
<td>Amaranthus thunbergii</td>
<td>Red pigweed</td>
<td>Physalis angulata</td>
<td>Wild gooseberry</td>
</tr>
<tr>
<td>Chenopodium album</td>
<td>White goosefoot</td>
<td>Tagetes minuta*</td>
<td>Khaki weed</td>
</tr>
<tr>
<td>Cleome monophylla</td>
<td>Spindlepod</td>
<td>Triumfetta annua</td>
<td>Burs</td>
</tr>
<tr>
<td>Commelina benghalensis</td>
<td>Wandering Jew</td>
<td>Xanthium strumarium</td>
<td>Cocklebur</td>
</tr>
</tbody>
</table>
#1 = Only weeds which are fully emerged, are well controlled - seedlings which emerge after application are only 60 – 70 % controlled.

**TABLE 4: VARIABLE CONTROL OF THE FOLLOWING WEEDS IS ACHIEVED WITH Hammer® ALONE (APPLIED POST-EMERGENT)**

<table>
<thead>
<tr>
<th>SCIENTIFIC NAME</th>
<th>COMMON NAME</th>
<th>LEVEL OF CONTROL</th>
<th>SCIENTIFIC NAME</th>
<th>COMMON NAME</th>
<th>LEVEL OF CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bidens pilosa</td>
<td>Blackjack</td>
<td>up to 70 %</td>
<td>Hibiscus trionum</td>
<td>Bladderweed</td>
<td>up to 70 %</td>
</tr>
<tr>
<td>Bidens formosa</td>
<td>Cosmos</td>
<td>up to 70 %</td>
<td>Ipomoea purpurea</td>
<td>Morning glory</td>
<td>up to 70 %</td>
</tr>
<tr>
<td>Cyperus esculentus</td>
<td>Yellow nut sedge</td>
<td>up to 80 %</td>
<td>Panicum schinzi **</td>
<td>Sweet buffalo grass</td>
<td>up to 90 %</td>
</tr>
<tr>
<td>Cyperus rotundus</td>
<td>Purple nut sedge</td>
<td>up to 80 %</td>
<td>Portulaca oleracea</td>
<td>Purslane</td>
<td>up to 70 %</td>
</tr>
<tr>
<td>Digitaria sanguinalis</td>
<td>Crab finger grass</td>
<td>75 – 90 %</td>
<td>Rottboelia exaltata</td>
<td>Guineafowl grass</td>
<td>70 – 85 %</td>
</tr>
<tr>
<td>Echinochloa colona</td>
<td>Marsh grass</td>
<td>75 – 80 %</td>
<td>Schkuhria pinnata</td>
<td>Dwarf marigold</td>
<td>80 - 90 %</td>
</tr>
<tr>
<td>Echinochloa crus-galli</td>
<td>Barnyard grass</td>
<td>75 – 80 %</td>
<td>Sorghum halepense</td>
<td>Johnson grass</td>
<td>up to 80 %</td>
</tr>
<tr>
<td>Eleusine indica</td>
<td>Goose grass</td>
<td>up to 70 %</td>
<td>Tribulus terrestris</td>
<td>Devil thorn</td>
<td>up to 70 %</td>
</tr>
<tr>
<td>Eragrostis curvula</td>
<td>Love grass</td>
<td>up to 70 %</td>
<td>Zea mais *°</td>
<td>Volunteer maize</td>
<td>up to 99 %</td>
</tr>
</tbody>
</table>

#2 = Plants turn purple within two - three weeks, but take longer to die than most other weeds – minimum of 4 - 5 weeks.

#3 = Maize varieties that are tolerant to Hammer® will not be controlled. Contact the supplier for information on tolerant maize varieties.

**TABLE 5: GUIDANCE FOR THE SELECTION OF MAIZE HYBRIDS, AS TESTED FOR PLANTING AFTER THE APPLICATION OF Hammer® IN THE WESTERN FREE STATE, WESTERN NORTH-WEST PROVINCE AND NORTHERN NORTH CAPE PROVINCE**

<table>
<thead>
<tr>
<th>COMMENTS</th>
<th>MAIZE HYBRID NO / NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>A NIL WAITING PERIOD</td>
<td>All Clearfield® maize hybrids</td>
</tr>
<tr>
<td>Consult your seed supplier for Clearfield® cultivars available for your region. This group can also be planted where Hammer® was applied to the previous season's groundnut, soya- or dry bean lands, in districts where a drought season or very low rainfall was experienced, i.e. less than 350 mm of rain. This group can also be planted immediately in the same season that Hammer® has been applied, i.e. where wind has covered or damaged new groundnut plantings.</td>
<td></td>
</tr>
<tr>
<td>B 10 MONTH WAITING PERIOD</td>
<td>PHB 30H22</td>
</tr>
<tr>
<td>Where the specified higher rate of 450 – 500 m³ / ha Hammer®, for Tribulus terrestris control, was used the previous season. This group of maize hybrids, semi-tolerant to Imidazolinone herbicides, can be planted where the average seasonal rainfall, or more, was experienced the previous season. But only use a Clearfield® maize hybrid, as recommended in section A above, if less than the average and especially, where less than 350 mm of rainfall was experienced the previous season.</td>
<td>PHB 3394</td>
</tr>
</tbody>
</table>
C 10 MONTH WAITING PERIOD

Where the standard registered rate of Hammer® for the soil type, was used in the previous season.

This second group of semi-tolerant maize hybrids, can be planted only where average rainfall, or higher, was experienced the previous season. Where less than the average rainfall was experienced the previous season, use only the maize hybrids in sections A or B above. If less than 350 mm rain fell during the previous season, only use Clearfield® maize hybrids as referred to in section A above.

CRN 3414
CRN 3505
CRN 3604
CRN 3631
CRN 3760
CRN 3891
CRN 4502
Goldfinger
Highflyer
LS 8503
PAN 6146
PAN 6233
PAN 6364
PHB 30D05
PHB 30T43
PHB 3203
PHB 32K39
PHB 32K61
SC 707
SC 707
SNK 2147
SNK 2401
SNK 2640
SNK 2776
SNK 2860
Woodriver

D A minimum waiting period of 20 months is recommended in the production areas, in western Free State, western North-West Province and northern North-Cape Province, for all maize hybrids not listed in the tables above. A test planting should nonetheless still be carried out. If there is any doubt, choose a yellow maize hybrid over a white hybrid.

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