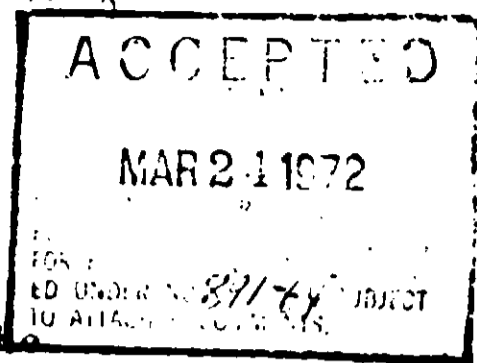


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HERCULES<sup>®</sup> HERBAN<sup>®</sup>  
WETTABLE POWDER (WP)

U. S. Patent 3,304,167



\*Herban is Hercules Incorporated's registered trademark for the selective herbicide chemical norca and formulations thereof.

For Weed Control In Cotton, Soybeans,  
Sorghum, Sugar Cane, Spinach and  
Commercial Nurseries

CAUTION: KEEP OUT OF REACH OF CHILDREN.  
READ PANELS ON SIDES AND BACK FOR  
ADDITIONAL HANDLING PRECAUTIONS.

ACTIVE INGREDIENT:

Norca (3-(hexahydro-4,7-methanoindan-5-yl)-1, 1-dimethylurea)	76%
Related Reaction Products	4%

INERT INGREDIENTS:

20%  
100%

MADE BY

AGRICULTURAL CHEMICALS - SYNTHETICS DEPARTMENT

HERCULES INCORPORATED  
WILMINGTON, DELAWARE, U. S. A.

Net Contents 3 pounds  
EPA Registration No. E91-64-AB

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GENERAL INFORMATION

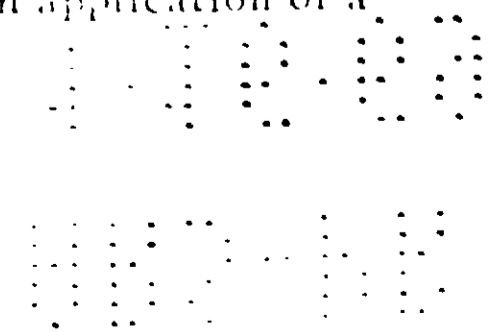
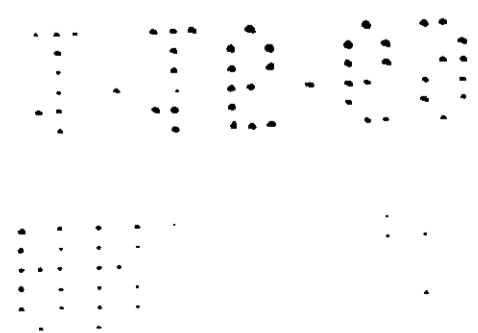
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Herban WP will control susceptible weeds in cotton, sorghum, soybeans, sugar cane, commercial nurseries, and spinach when applied according to directions. Because Herban WP kills germinating weeds only after root absorption, rain or sprinkle irrigation is needed for good results when it is applied prior to weed emergence. Best results will be achieved when this happens within a week or two after application.

WEEDS CONTROLLED

Herban WP controls annual weeds and grasses such as Barnyard grass, Goosegrass, Brachiaria, annual Chickweed, Colorado grass (Harrah grass), Cocklebur, Crabgrass, Florida pusley, Foxtails, Henbit, Lambs-quarters, Morning glory, Panicum (summer and fall), Pigweed, and Purslane. Weeds of intermediate susceptibility, particularly at the lower rates of use, are Ragweed, Jimson-weed, Velvet leaf, and Smartweed. Control of deep-germinating Morning glory and Cocklebur requires good rainfall or sprinkle irrigation to move the herbicide to their roots.

Herban WP will not control perennial weeds such as Trumpet vine, Nutgrass and Johnson grass. In areas where an extremely dense population of Red-root pigweed prevails, the prolonged germination period of this weed may allow the late-germinating seeds to escape the effectiveness period of Herban WP. Such pigweeds that do develop may require an application of a suitable post-emergence herbicide.



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DIRECTIONS FOR USE - EQUIPMENT

Ground Application

A sprayer designed for low-volume applications is recommended. Strainers finer than 50 mesh should not be used. This formulation is a wettable powder, and the spray mixture must be constantly agitated. Bypass agitation is satisfactory. Use nozzle tips designed for pre-emergence herbicide application (flat, nontapered spray pattern for band treatment) with pump pressure of 30 to 60 pounds. Use spray volumes of 15 - 20 gallons per acre for pre-emergence broadcast applications, and 20 - 30 gallons per acre for broadcast application to foliage of weeds. Use proportional amounts for band applications.

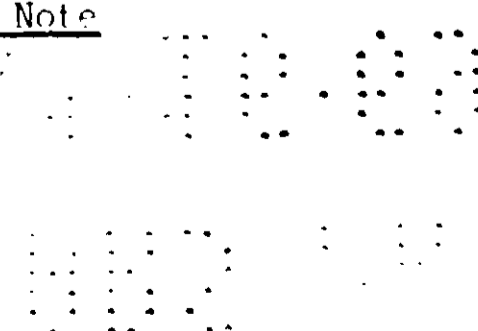
Aerial Application

An airplane may be equipped for wettable powder herbicide applications. Total volume should be between 5 and 10 gallons per acre. Airplanes equipped with smaller nozzles should not be used.

How to Mix the Spray

Thoroughly slurry or mix Herban WP with water before putting it in the spray tank. Use about 3 gallons of water for each 3-pound bag. Fill spray tank with about half the total volume of water. Start pump to provide agitation, then pour and rinse slurried Herban WP into the spray tank. Add additional water to tank to desired volume with pump circulating the mixture.

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DIRECTIONS FOR USE - RATES

Pre-emergence Weed Control for Cotton

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Good seedbed preparation is vital for the successful use of pre-emergence herbicides. Trash, clods of soil, and stones should be removed and the cotton planted in a uniform smooth bed of soil.

Apply Herban WP to the soil surface at the time cotton is planted, or within 3 days after planting. Accurately calibrated low-volume herbicide spray equipment is required for the most effective and economical application. Less is needed on light soils, more on heavier soils. Broadcast 1.8 pounds Herban WP per acre on light sandy loam and loamy sand; 2.25 pounds on medium clay and silt loam; and 3.375 pounds on heavy clay (buckshot) and heavy clay. Use a proportional amount for band treatment depending on width of band. Herban WP does not affect the cotton plant unless applied at a high over-dosage. The dosage for heavier soils may be applied to lighter soils with no harm to the cotton. For example, there is no need to vary application rates because of "hot" spots of light sandy soil occurring in a field of silt or clay loam.

CAUTION: Under certain conditions, cotton seedlings may be severely damaged or killed when certain systemic insecticides are used prior to or with pre-emergence applications of this product. Such insecticides should be avoided if pre-emergence treatment of cotton is to be used.

Cultivation Following Pre-emergence Application

Badly crusted soils may be cultivated with a rotary hoe, but this should be done only when required to aid in the emergence of the crop seedlings. Discing the soil of the field to be treated should be avoided. If treated areas are cultivated, the soil should be cultivated with a rotary hoe.

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Replanting Following Pre-emergence Application

If replanting is necessary, soil may be reworked or not, as desired. Herban WP will not injure the cotton seedling when used as directed, and a second pre-emergence application of Herban WP may be safely used. Do not make Herban WP applications when replanting cotton treated at the first planting with other urea-type herbicides.

Di-application

Apply Herban WP pre-emergence to cotton planted in soil treated with Treflan or Planavin. Use 1.8 - 2.25 pounds broadcast rate per acre. Use a proportional amount for band treatment.

Pre-Bloom Post-emergence Weed Control in Cotton

Directed Spray Applications - For broad spectrum post-emergence weed control, a tank mix of Herban-DSMA-Surfactant or Herban-MSMA-Surfactant may be used to control Johnson grass, Goose-grass, Nutgrass, Colorado grass (Harrah grass), Crabgrass, Morning glory, Cocklebur, Pigweed, Purslane, Coffeeweed, Water grass (Barnyard grass), Florida pusley, Smartweed, Povertyweed, and Carpetweed.

Broadcast 1.0 to 1.5 pounds Herban WP in mixture with either 1.5 to 2.0 pounds DSMA (actual) or 1.0 to 1.75 pounds MSMA (actual) plus 0.5% (by volume) surfactant to 20 to 30 gallons of water per acre. If band application is used, apply a proportional amount of the mixture per acre. For example, on a 14" band (40" row spacing) use 7 to 10 gallons of mixture per acre of crop. Thoroughly wet foliage and stems of weeds. Nozzles should be arranged so as to avoid spraying the cotton foliage, but also to give maximum coverage of the band grasses. For more complete kill of weeds, make a

second application at the same rate 5 to 7 days after the first application. Applications should be made to weeds when cotton is 3 inches high and until first bloom. Do not apply this mixture after first bloom opens.

CAUTION: Do not graze treated areas or feed livestock treated forage. Do not use this mixture for any purpose or in any manner not given on this label, as to do so may result in unlawful residues in crops.

CAUTION: HARMFUL IF SWALLOWED. Avoid contact with skin or prolonged breathing of spray mist. Wash hands after using. ANTIDOTE: If taken internally, induce vomiting, and call a physician at once.

Post-Bloom Post-emergence Weed Control in Cotton

Directed Spray Applications - Best time for post-bloom application of Herban WP is immediately after last cultivation. Herban WP may be applied without previous cultivation if weed growth is only light, or if weeds are actively growing and succulent (but less than 2 inches tall). If weeds are drought-stressed or more than 2 inches tall, they should be destroyed by flaming or cultivation before making herbicide application.

When weeds are absent, apply 1-2/3 pounds of Herban WP on light sandy loam and loamy sand or 2 pounds on medium light clay, loam, and silt loam broadcast per acre. Be sure both the middle and drill row are sprayed uniformly. Keep spray low to minimize contact with cotton plant.

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When weeds are present the addition of a surfactant to the spray mixture aids in the foliar absorption of the herbicide and helps kill emerged weeds that are past the seedling stage. Apply 1-2/3 pounds of Herban WP on light sandy loam and loamy sand or 2 pounds on medium light clay, loam and silt loam broadcast per acre. Add 4 pints of surfactant to each 100 gallons of spray mixture. CAUTION: Spray weeds and soil uniformly. Be sure the spray boom is high enough so that the best possible coverage of weeds is obtained. However, do not raise it so high that the spray contacts lower branches of the cotton plant.

Pre-emergence Weed Control in Sorghum

Apply Herban WP to the soil surface either broadcast or as a band treatment following planting but before weeds or sorghum emerge. Less is needed on light soils; more on heavier soils or those with high organic matter. Apply 2.0 pounds Herban WP on low organic, sandy loam, loams and silt loams or 3.0 pounds on medium or high organic clay, clay loam, heavy or dark prairie soil broadcast per acre. Use a proportional amount for band treatment depending on width of band.

Herban-Atrazine combinations may be used for broader spectrum weed control in sorghum. For medium and high organic soils, loam, clay loam, heavy or dark prairie, apply 1.5 to 2.5 pounds of Herban WP plus 0.75 to 1.25 pounds Atrazine SCW broadcast per acre.

Herban-Propazine combinations, use 1.33 to 2.5 pounds Herban WP plus 0.67 to 1.25 pounds propazine SCW broadcast per acre. Use higher rates on sandy loams or silt loams and higher rates on clay loams or soils with high organic content.

CAUTION: Do not graze or feed forage sorghum within 90 days after application of Herban or Herban-Atrazine combinations. Do not plant areas treated with Herban-Atrazine combinations to any crop except corn, sorghum or sugar cane until the following year. Do not plant any crop except sorghum for 18 months after the application of Herban-Propazine combinations.

NOTICE: Under certain rainfall and soil conditions, injury from these herbicides may occur, and risk must be assumed by user.

Do not apply Herban WP, Herban-Atrazine or Herban-Propazine on sandy soil or deep sands.

Weed Control in Sugar Cane in Louisiana and Puerto Rico

Apply Herban WP to soil surface before weed emergence and either pre- or post-emergence to cane. DO NOT APPLY LESS THAN 5 MONTHS BEFORE HARVEST. Apply 3 to 4 pounds Herban WP broadcast per acre pre-emergence to weeds and to cane; or, apply 3 pounds Herban WP broadcast per acre post-emergence to cane. Do not apply Herban WP post-emergence to cane that has been treated pre-emergence with Herban WP. If band application is desired, use a proportional amount per acre, depending on width of band treated.

Post-emergence Weed Control in Sorghum

Apply 1.50 to 2.50 pounds of Herban WP with 0.75 to 1.25 pounds of Atrazine SCW after sorghum emerges and the stand well established, but before weeds are 2 inches high. Apply the lower rates on silt loams and sandy clay soils; higher rates on silty clay loams or heavier soils. If weeds are present, add 0.5% surfactant by volume in the spray mixture. Do not add oil to the spray mixture.

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**CAUTION:** Do not graze or feed forage sorghum treated with Herban-Atrazine within 90 days after application. Do not plant treated areas to any crop except corn, sorghum or sugar cane until the following year.

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**NOTICE:** Under certain rainfall and soil conditions, injury from these herbicides may occur, and risk must be assumed by user.

Do not apply Herban WP or Herban-Atrazine on sandy soil or deep sands.

Pre-emergence Weed Control in Soybeans

Apply Herban WP to soil surface at the time soybeans are planted or within three days of planting. Broadcast 1.8 pounds of Herban WP on silt or fine sandy loam soils, 2.25 pounds on medium textured soils and 3.0 pounds on heavy clays. Proportional amounts are used for band treatment.

Combination of Herban-Amiben - Soybeans

Use 1.0 to 1.5 pounds Herban WP plus 1.0 to 1.5 pounds Amiben (active ingredient) broadcast per acre. Apply at planting or within three days. Apply the higher rates on heavy soils. Use proportional amounts for band treatments.

**CAUTION:** Do not graze or feed soybean forage from treated areas to livestock. If the seeding fails and crop is replanted to soybeans, thoroughly work the soil, replant but do not re-treat.

With certain rainfall conditions following pre-emergence applications plant injury may result and risk must be assumed by the user.

Do not use Herban WP or Herban-Amiben mixtures on sandy loams with low organic content or on sandy soils and deep sands.

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Pre-emergence Weed Control in Spinach

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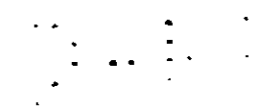
Apply 1.0 pound of Herban WP broadcast per acre on low organic, sandy soils or 2.0 pounds on medium organic, sandy loam or light clay. Use a proportional amount of spray mixture for band treatments, depending on width of band. Herban WP should be applied to the soil surface at planting time or before weeds or spinach emerge.

Weed Control in Commercial Nurseries

Herban WP can be used for weed control in commercial culture of ornamental shrubs, trees and perennial flowers such as Ajuga, Shasta Daisy, Crysanthemums, Stonecrop, Creeping Thyme, Periwinkle, English Ivy, Day Lily, Hemlock, Japanese Andromeda, Japanese Holly, Osmanthus delavayi, Juniper, Arborvitae, Yews, Eucynmus, Burfordi Holly, Ligustrum, Magnolia, Nandina, Pyracantha, Camellia japonica, Camellia sasanqua, and Spiraea. Pine seedlings, Boxweed, Hibiscus and Rhododendron may be injured by Herban WP.

Apply Herban WP as a directed broadcast or as a directed band treatment over the row to field stock. Application rates of 4 to 6 pounds Herban WP (broadcast) will generally give effective control of the annual weeds and grasses listed. If there is no effective rain within a week after Herban WP application, sprinkler irrigation should be used.

Herban WP should be used prior to the emergence of weeds. If weeds exist, the soil should be cultivated before application to provide a weed-free and uniform soil surface. On newly planted liners, Herban WP may be applied:



as soon as the soil has settled. Herban WP may be applied in commercial culture at any time of the year.

CAUTION

Keep clean. Avoid contact with skin. Do not get in eyes.

Wash up when job is finished.

USE PRECAUTIONS

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Following Crops

Herban WP is gradually destroyed in the soil. However, crops other than cotton, sorghum, soybeans, spinach, sugar cane or tolerant ornamentals should not be planted sooner than 5 months after treatment of soil with Herban WP to avoid the possibility of crop injury.

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Accurate Dosage

Calibrate equipment and double-check calculations and measurements for preparation of spray liquid. Shut off spray when turning, stopping or slowing tractor.

Prevent Injury to Other Crops or Plants

Do not use Herban WP on or near lawns, flowers or other desirable plants, except as directed for commercial nursery use. Prevent the drift of spray to other areas. Do not contaminate water in irrigation ditches or domestic water supplies. Do not store Herban WP in contact with fertilizers, seeds, insecticides or fungicides.

Cleaning Sprayer

Flush all parts of sprayer with several charges of fresh water promptly after job is finished. Parts such as nozzle tips and screens should first be removed and washed separately.



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Destroy Bag

Destroy bag by burning. Do not reuse for any other purpose.

NONWARRANTY

Hercules warrants that this herbicide conforms to the chemical description on its label. When used in accordance with label directions under normal conditions, this herbicide is reasonably fit for its intended purpose. Since timing, method of application, weather, plant, and soil conditions, mixtures with other chemicals and other factors affecting the use of this herbicide are beyond our control, no warranty is given concerning the use of this herbicide contrary to label directions or under conditions which are abnormal or not reasonably foreseeable. The user assumes all risks of any such use.

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ACCEPTED WITH COMMENTS