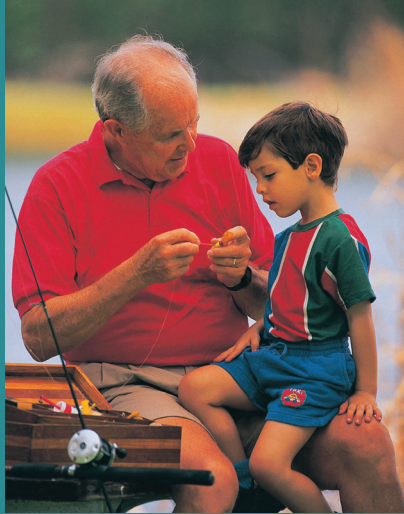
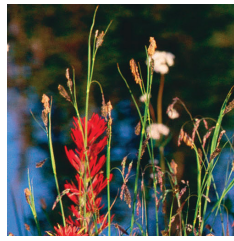


VectoBac®



*Technical Use Bulletin for VectoBac G & CG
Mosquito Larvicide*



VectoBac G and CG are granular formulations of Bacillus thuringiensis H-14 for the control of mosquito larvae. The potency of both formulations is 200 International Toxic Units (ITU) per milligram equivalent to 0.091 billion ITU's per pound.

VectoBac G is available in 5/8 mesh and VectoBac CG is available in 10/14 mesh. The granules are designed to be applied by ground or aerial application.

The size, shape and density of the granules lessens the potential for off-target application due to aerial drift and enables good penetration of dense vegetation. The presence of both floating and sinking granules helps ensure the distribution of the active ingredient throughout the larval feeding zone.

Bulk Density:

<u>VectoBac G 5/8 mesh</u>	<u>VectoBac CG 10/14 mesh</u>
Approximately 25 lbs/ft ³ or (401 kg/m ³)	Approximately 30 lbs/ft ³ or (480 kg/m ³)

VectoBac granules are available in the standard pack size of 40 lb. (18.1 kg) bags. Special orders are available for 25 pound (11.3 kg), and 1000 pound bags (453 kg), and in bulk quantities of 1,200, 1,300, and 1,400 pounds (545, 589 and 635 kilograms) packaged in bags.

Ground Applications

VectoBac granular treatments can be made with many types of ground equipment designed for granule application. These include manually or mechanically driven devices relying on a whirling disk (e.g. Cylcone® seeder, Ortho Whirlybird® seeder) and air-blast applicators (Buffalo® turbine, Maruyama® or Stihl® power backpacks.) VectoBac CG is suitable for Horn seeder applications.

When using VectoBac granules, it is important to properly calibrate application equipment. Granule output at a given setting should be determined as well as swath width and required speed or travel.

Aerial Applications

VectoBac granules can be applied aerially with conventional fixed-wing aircraft or helicopter granule application equipment. Each application unit should be calibrated and the swath characterized using VectoBac granules before being used operationally. The variety of equipment in field use precludes specific instructions on settings, airspeed, etc. As an example: ram-air type of applications used on most fixed-wing aircraft usually requires a simple adjustment of the baffle plate or gate to decrease the granule flow rate. Most aerial treatment rates will be in the range of 5 to 10 pounds of VectoBac granules per acre (5 to 10 kg of VectoBac granules per hectare).

VectoBac G and CG formulations are covered by U.S. Patent No. 4,650,792.

Application Rates

Habitat	VectoBac G and CG
Irrigation ditches, roadside ditches, flood water, standing ponds, woodland pools, snow melt pools, pastures, catch basins, storm water retention areas, tidal water, salt marshes, & rice fields	2.5 to 10 lbs/acre (2.5 to 10 kg/Ha)
Polluted or highly organic water* (such as sewage lagoons & animal waste lagoons)	10 to 20 lbs/acre (10 to 20 kg/Ha)

*Use higher rates in polluted water and when 3rd and early 4th instar larvae predominate, mosquito populations are high, water is heavily polluted, and/or algae are abundant.

VectoBac Granular Field Trial Results — VectoBac G continued

Mosquito Species	Habitat	Investigator	Application	Rate lbs./Ac (kg/Ha)	Mortality
Culex tarsalis	Secondary Sewer Water	Dr. R. Garcia University of CA	Ground	8.9 (8.9) 6.7 (6.7) 4.5 (4.5)	99% 98% 90% 24 hrs.
Culex pipiens quinquefasciatus	Fresh water	Dr. R. Parsons Sarasota Co. MCD Florida	Air	10.0 (10.0)	100% 24 hrs.
Culex pipiens quinquefasciatus	Poultry Waste Lagoons	Dr. R. Axtell N. Carolina St. Univ.	Ground	5.0 (5.0)	99% 72 hrs.
Aedes canadensis Aedes stimulans	Woodland Bogs	Dr. Fanara Saginaw Bay MCC Michigan	Air	5.0 (5.0)	100% 144 hrs. 24 hrs.
Aedes vexans	Natural Pools	Dr. W. Rowley Iowa St. Univ.	Ground	5.0 (5.0)	100% 24 hrs.
Aedes vexans	Woodland Pools, Ditches	So. Cook County MAD Illinois	Buffalo Turbine	6.0 (6.0)	98% 24 hrs.
Aedes sollicitans	Salt Marsh	Cape May Co. MCC New Jersey	Air	7.2 (7.2)	97% 30 hrs.
Aedes sollicitans	Salt Marsh	B. Brown Ecoanalysts, Inc. Georgetown, ME	Air	7.5 (7.5)	99% 24 hrs.
Ochlerotatus nigromaculis	Pasture	Dr. C. Schaefer S. Mulligan University of CA	Ground	8.9 (8.9) 8.9 (8.9)	99% 93% 24 hrs.
Ochlerotatus communis Aedes punctator	Snow Melt Pools	Dr. M. Colbo Memorial Univ. Newfoundland	Ground	5.3 (5.3) 8.9 (8.9)	100% 99% 24 hrs.
Psorophora columbiae	Pasture	Dr. M. Mulla University of CA	Ground	5.0 (5.0) 10.0 (10.)	95% 97% 24 hrs.



Cylcone® seeder, Ortho Whirlybird® seeder Buffalo® turbine, and Stihl® power backpacks are all registered trademarks of companies other than Valent BioSciences Corporation.