



TEST DATA REPORT

BeeAlert Spray Test

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| PHASE I. | Tractor Mount Attacking Honey Bee Test |
| PHASE II. | Tractor Mount Attacking Honey Bee Test |
| PHASE III. | Tractor Mount Africanized Honey Bee Test |
| PHASE IV. | Portable Unit Attacking Honey Bee Test |

for
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Test I & II Data Report - BeeAlert Tractor Spray Test

Synopsis:

This report presents data taken in East Texas with the BeeAlert Tractor Mounted Spray System on a John Deere 2210 HST. The liquid solution is a mixture of BeeAlert chemicals and water which is furnished by the company. Testing was conducted on May 15-16, 2006

The test was divided into two phases. Phase I involved placing two honey bee hives approximately 15 feet apart which allowed enough room for a tractor to drive between them. This simulated the driver being attacked by bees, whose hives were knocked around and frames taken out of.

Phase II was similar to the first test, however, four honey bee hives were used in the demonstration. Two hives on the ground and two hives on drums were placed 15 feet apart simulating a massive bee attack environment.

The test results demonstrated that the BeeAlert Tractor Mounted Spray System provided satisfactory protection for the driver and allowed enough time to drive away from the bee attack area.

Test Plan I:

The test demonstration was designed for a bee attack environment and provided protection to the driver.

Phase I - Bee Attack Environment

Goal: Protection to the driver

Procedure:

- Hive strength was estimated at 25,000 - 30,000 bees per hive.
- Two minute stop between hives.
- BeeAlert spray system activated 50 feet prior to entering the attack zone.
- Distance drove from attack environment after the two minute stop.

Test Plan II:

Phase II - Bee Attack Environment

Goal: Protection to the driver

Procedure:

- Hive strength was estimated at 35,000 - 45,000 bees per hive.
- One minute stop between hives.
- BeeAlert spray system activated 50 feet prior to entering the attack zone.
- Distance drove from attack zone after the one minute stop.

Test I Results:

The Phase I test was conducted by having the tractor operator drive toward a simulated bee attack area (fig. 1) and activate the BeeAlert spray system approximately 50 feet before entering the test zone. To simulate a bee attack the operator wore no bee protection, he is dressed in jeans, t-shirt and ball cap. Prior to entry into the test zone, the bee hives were agitated by the test coordinator in a bee protection suit. Once inside the test zone, the driver will keep the BeeAlert system on and stop the tractor for two minutes (fig. 2). The driver was satisfactorily protected during this period and received only one bee sting. After the two minute whistle warning, the driver proceeded forward (fig. 3) for a distance of approximately 620 feet before the spray system was cut off. The spray system ran for a period of 4 minutes and 31 seconds before draining the 9 gallon tank (fig. 4). The above test was video taped.



Figure 1. Simulated bee attack area with hive entrance facing toward the field road.



Figure 2. Tractor parked between hives in test area for two minutes, spraying driver and giving protection against honey bee attack.



Figure 3. Tractor leaving test area.



Figure 4. BeeAlert tank on back of tractor.

Test II Results:

Test II was conducted with four honey bee hives averaging 35,000 - 45,000 bees per colony. Two hives were placed on drums with entrances facing toward the driver's upper body, giving maximum exposure to the face and chest area (fig. 5). All hives were agitated by shaking and pulling frames from each colony, simulating a bee attack. The unprotected driver activated the BeeAlert spray system approximately 50 feet before entering the test area (fig. 6). Once inside the test area, the driver will keep the BeeAlert system on (fig. 7) and stop for a period of one minute. The driver was satisfactorily protected during this period while receiving only two bee stings. Then the driver drove out of the test area (fig. 8) for a distance (fig. 9) of 978 feet before the BeeAlert system depleted the 9 gallon tank.



Figure 5. Showing 4 double deep boxes with 2 hives on drums.



Figure 6. Entering test area with BeeAlert system on.



Figure 7. Driver parked in center of test area for one minute.



Figure 8. Exiting test area.



Figure 9. Tractor travelled 978 feet. Driver was unharmed by the non-toxic BeeAlert chemicals

Test Program Conclusion:

Testing of the BeeAlert Tractor Mounted Spray System was successful in both sting tests. Phase I and Phase II revealed only 1 and 2 bee stings, respectively, to the driver, which were on his back. It is reasonable to assume that the operator would have received hundreds of stings without the protection of the BeeAlert system. The latter test involved the driver being exposed to around 150,000 bees for 1 minute and allowing him to travel over 900 feet to a reasonable bee free environment. During the spray period of 4 minutes and 31 seconds, the driver was able to control the tractor and go at a reasonable speed. The BeeAlert spray system is designed for emergency use and allowing the driver to go to a safe area.

Discussion:

The spray nozzles should be adjusted or redesigned to give more protection to the driver's back during a bee attack. This could be done by adding another nozzle or arranging the nozzles further away from the tractor giving more protection. The equipment should be tested several times during the season and operator needs to check tank prior to every use. The operator was unharmed by the non-toxic BeeAlert formula.

Test III Data Report – BeeAlert Tractor Spray Test Africanized Honey Bees

Synopsis:

This report presents data taken in South Texas with BeeAlert Tractor Mounted Spray System on a John Deere 2210 HST. The liquid solution is a mixture of undisclosed BeeAlert chemicals and water which is furnished by the company. Testing was conducted on August 24, 2006 near Uvalde, Texas.

The Phase III test was conducted around an old ranch house in Uvalde County and involved Africanized Honey Bees nesting between the walls on the side of the ranch house. Hive entrance was approximately 3.5 feet above the ground facing a carport. Feral nest inside the wall was disturbed prior of driving the tractor under the carport.

The test results demonstrated that the BeeAlert Tractor Mounted Spray System provided satisfactory protection for the driver and allowed enough time to drive away from an Africanized Honey Bee attack area.

Test Plan III:

The test demonstration was designed for an Africanized Honey Bee attack in a natural environment and provided protection to the driver.

Phase III – Bee Attack Environment

Goal: Protection to the driver

Procedure:

- Hive strength was estimated at 20,000 – 30,000 bees
- Natural environment, feral bees in an old ranch house with mesquite trees around home site
- One-minute stop near hive entrance
- BeeAlert spray system activated 50 feet prior to entering carport or attack zone
- Distance drove from carport after the one-minute stop to safe zone or bee free area

Test III Results:

The Phase III test was conducted with an Africanized Honey Bee feral colony inside a ranch house. Hive entrance was a facing carport (fig. 1), and the feral nest was estimated to contain 20,000-30,000 bees. The nest was agitated by shaking and pulling pieces of siding from entrance causing bees to attack. The driver activated the BeeAlert spray system approximately 50 feet before entering the carport (fig.2). Once inside the test area (fig. 3), the unprotected driver kept the BeeAlert system on and stopped the tractor for one minute. The driver was satisfactorily protected during this period and received only four bee stings. After the one minute whistle warning, the driver proceeded forward (fig. 4) for a distance of approximately 425 feet before the spray system was cut off. The BeeAlert spray system used approximately 9 gallons of solution and allowed the driver to operate his tractor around trees and drive to a bee free area (fig. 5). The above test was video taped (fig. 6).



Fig 1. Hive entrance facing carport.



Fig 2. Tractor entering carport, spraying driver and protecting against Africanized Honey Bee attack.



Figure 3. BeeAlert system on for one minute



Figure 4. Tractor leaving test area.



Figure 5. Operating tractor around trees, driving to a bee free zone.



Figure 6. Video taping test area.

Test Program Conclusion:

Testing of the BeeAlert Tractor Mount Spray System was successful against the Africanized Honey Bee attack, revealing only 4 bee stings to the drivers' upper body during this one-minute period. It is reasonable to assume the operator would have received hundreds of stings without the protection of the BeeAlert system. Earlier testing showed the 9 gallon spray system can last a period of 4 minutes and 31 seconds and allows the driver to travel a distance beyond 900 feet. The Africanized Honey Bee testing (Phase I, II and III) demonstrates the BeeAlert spray system is designed to and successfully provides emergency protection to the driver and allows him to maneuver the tractor to a safe area. During this test, only 8 gallons of liquid solutions and a distance of 425 feet were needed for the tractor driver to go to a bee free area.

Discussion:

The spray nozzles should be adjusted or redesigned to maximum protection to the driver's upper body. The tank should be checked prior to every use and should be tested several times during the year. The operator was unharmed by the non-toxic BeeAlert formula.

Test IV Data Report – BeeAlert Portable Spray Test

Synopsis:

This report presents data/demonstration taken in central Texas, with the BeeAlert Portable Spray System, containing a liquid solution of undisclosed BeeAlert Chemicals and water. This mixture is furnished by the company. Demonstration was conducted on June 5, 2007, near Bryan, Texas.

The Phase IV test was conducted on a two acre home site in Brazos County, and involved European Honey Bees in a 10-frame Langstroth-style hive, the standard hive used in the United States. Hive entrance was facing the driveway and the operator of the lawnmower.

The test results demonstrated that the BeeAlert Portable Spray System provided satisfactory protection while removing the victim from a hazardous environment to an ambulance or a non-hazardous environment.

Test Plan IV:

The test demonstration was designed for a honey bee attack in a natural environment and to move victim(s) to a protected place.

Phase IV: Simulated Hazardous Environment

Goal: Remove person from hazardous environment

Procedure:

- Hive strength was estimated at 20,000 – 30,000 bees.
- Natural environment, honey bees on a 2 acre home site.
- Place 3,000 – 4,000 bees on a persons back and shoulders.
- BeeAlert Portable Sprayer was activated prior to entering the hazardous area.
- Removed person(s) to a non-hazardous area.

Results:

Phase I, II and III in 2006, has demonstrated the effective use of the BeeAlert liquid solution. These tests were conducted with a Tractor Mounted Spray System and provided satisfactory protection to the driver.

Test IV Results:

The Phase IV test was conducted with European Honey Bees on a 2 acre home site (fig. 1) near Bryan, Texas. The hive entrance was facing the driveway (fig. 2) and colony strength was estimated to contain 20,000 – 30,000 bees. The owner of the property was mowing the yard (fig. 3) and was attacked by bees when he came too close to the hive (fig. 4). The wife notified emergency personnel and EMT's (fig. 5) arrived quickly to the area. The BeeAlert Portable Sprayer (fig. 6) which contained approximately 9 gallons of solution was used to retrieve the person from the hazardous area and moved to a non-hazardous area in the vehicle. The above test was video taped.



Figure 1. Home site near Bryan, Texas



Figure 2. Hive facing driveway



Figure 3. Mowing yard



Figure 4. Bee Attack



Figure 5. Emergency vehicle arriving on site



Figure 6. EMTs use the BeeAlert Portable Sprayer to rescue homeowner

Test Program Conclusion:

Testing of the BeeAlert Portable Sprayer was successful against the honey bee attack and the property owner received only 2 stings during removal. One of the two unprotected professional emergency medical technicians received one sting. It is reasonable to assume without BeeAlert, test subjects would receive hundreds of stings. During this test, approximately 4 gallons of liquid solution was used while moving the owner to a non-hazardous area. The non-toxic BeeAlert formula proved to be harmless to the property owner and EMTs.

Discussion:

Although the above test was successful, personnel should be familiar with the BeeAlert Portable Sprayer. Protective equipment (bee suits, gloves, etc.) should be available and used when necessary. All rescue missions are not the same, so always be prepared.