Monitoring and control strategy of Brown marmorated stink bug (*Halyomorpha halys*) in Georgia

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07.09.2017, Tbilisi, Georgia
The Main functions of Plant protection department:

- Organize plant protection preventive measures, supervision and control
- State registration of pesticides and fertilizers
- Phytosanitary monitoring
- Phytosanitary and re-export phytosanitary certificate issue and control
- Implementation of quarantine activities;
- Protection territory of the country from introduction and spreading of pests.
- Phytosanitary diagnosis of agricultural lands, forecasting pest spread and elaborating measures to fight against them....
Legislation:

Law of Georgia
FOOD/FEED SAFETY, VETERINARY AND PLANT PROTECTION CODE

Law of Georgia
on Pesticides and Agrochemicals

Secondary legislation
Governmental decrees, orders of the Ministry of Agriculture or joint orders – with the Ministry of Finance
Georgia is contracting party of:

1. World Trade Organization
2. Food and Agriculture Organization of the United Nations
3. International Plant Protection Convention
4. Rotterdam Convention
5. CBD
6. Basel Convention
Georgia is contracting party to:

From 2016 member of EPPO
Some general info about the pest

**Brown Marmorated Stink Bug - BMSB**

**Order: Hemiptera**
**Family: Pentatomidae**
**Species: Halyomorpha halys**

- Native to China, Japan and Korea.
- First individuals found in Georgia in the summer 2015.

- BMSB is polyphagous insect (> 200 reported host plants)
  Can feed on:
  - **Fruit crops** (Peach, Pear, apple, hazelnuts, etc.)
  - **Field crops** (corn, soybean, etc.)
  - **Vegetables** (tomatoes, peppers, beans)
  - **Forestry and Ornamental plants**
Adults seeking to repaired areas for overwintering. Privileged sites can be forests, houses, garages and other protected places.

Adults become active in the spring, and after feeding for about 2 weeks, they mate. The female begins to lay eggs in clusters of 20 to 28 with a range of 200 to 250.
The invasive insect *H. halys* is more harmful than other stink bugs (like *Gonocerous acuteangulatus*, *Palomena prasina*, etc.), due to:

- lack of specific natural enemies,
- reproduction in large numbers,
- wide host range,
- resistance to cold weather,
- effective overwintering strategies (and increased survival due to global warming)
- Incredible flight capacity, up to several km per day.
Immediately after the spread of the pest at the end of 2016, international experts were invited to Georgia, among them experts from USA.

Experts were invited with the support of Restoring Efficiency to Agriculture Production (REAP) project of USAID.

With the contribution of foreign experts, Strategy and action plan were prepared which includes 3 main directions:

- Information campaign
- Monitoring
- Spray campaign

The government of Georgia issued special order #588 dated on March 24, 2017 “Actions Against BMSB” which allocates to NFA and local municipalities of western Georgia.
Within the frames of information campaign, 100 000 brochures were prepared and distributed to raise awareness of farmers.

NFA started consistent implementation of action plan with the support of USAID.
Informative video clip was broadcasted on central and local TV channels
more than 3,000 representatives of NFA with Extension Centers of the Ministry of Agriculture and the representatives of local municipalities received training on:

- Identification of the BMSB
- Installation of Traps and lures
- Safety application of pesticides
- Training of Solo Sprayer and Maintenance
- Proper use of BMSB mapping and online tracking system
Within the frames of USAID REAP the Agency received 1600 backpack Solo Port 423 – and respective individual means of protection for staff dealing with pesticides (protective coveralls, gloves, respirators, glasses, earplugs).

1500 working groups were trained.

Municipalities were given:
- Insecticide (Bifentrin) - 65 000 litre
- Backpack Solo - 1500 units
- Individual means of protection for 1500 working personnel
Special program and interactive map was set up for monitoring purposes
Monitoring Update, Type Change, Pheromone Change

• Inputs
  • A unique 7-digit code of the trap
  • Number of insects caught
  • Invasion Type
  • Description
  • Photo
In order to define the area of spread and territories to be treated against BMSB, the Agency staff installed 21000 pheromone traps.

17 May, 2017 Senaki, Georgia
Treatment

- On the basis of monitoring, the area of spread was defined and territories to be treated.

- The date of launching the measures was planned according to the recommendations of entomologists.

- Treatment measures on hazelnut crops started on June 12 and continued till 10th of July. Municipalities were involved in carrying out the measures.
Despite difficult climatic conditions (frequent rains) 53,000 ha of hazelnut orchards were treated in Western Georgia covering 351 villages.
Despite measures carried out on hazelnut orchards, in August the pest spread to corn and other crops.
• The Agency with the assistance of Dr. Greg Krawczyk from the University of Pennsylvania assessed the existing situation and allocate resources in the affected areas.
• Spraying machines for cars and tractors are working
• Plots are treated by thermal mist technology
• On the second stage of measures, the treatment of 30 000 ha is planned.
SCOUT 34S – 7 units

Dyna fog 1200 ULV • 5 units

WIND 640 FLX 2 units

special sprayer equipment

1500 units
• Continue BMSB monitoring/surveillance with the special emphasis on areas identified as a high pressure zones during the 2017 season.

• Continue the insecticide based management programs against BMSB in areas identified by monitoring traps. Multiple insecticide applications will be needed in orchards with high BMSB populations, as indicated by continued high captures of BMSB adults and nymphs.

• In situation where insecticide applications are not practical or possible, implement alternative BMSB management practices, such as “attract and kill” stations with a high dose of pheromone (3x or more). The “attract and kill station” needs to be in place for the entire growing season.

• The intensive management efforts are expected but might not be limited only to areas with high BMSB pressure experienced during the 2017 season.
Long term goal

Create conditions and economic stimulus so that each individual farmer will develop skills and abilities to manage their farm individually, utilizing recommendations provided by professionals and advisors.
Thank you for your attention!