

- Project Title** : Control of *Frankliniella occidentalis* Pergande (Thysanoptera: Thripidae) in cold storage conditions on exported table grape and strawberry
- Start Date** : 2012
- Supporting Body** : GDAR
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- Summary** : Grape and strawberry production are very important both domestic and export trade. The highest proportion is exported to the Russian Federation. Because of the infestation of *Frankliniella occidentalis* Pergande (Thysanoptera: Thripidae), one of the quarantine pests in the Russian Federation, 50 tons of grape and 21 tons of strawberry have been rejected in 2010 (Anonymous 2010). Any research study has been conducted for the control of *F. occidentalis* through the use of quarantine treatments in Turkey. Chemical control of the pest is very difficult in the field because it is polyphagous and multivoltine pest.

It is aimed that *F. occidentalis* will be reared in laboratory conditions and tested to control it during cold storage. Different controlled atmosphere and phosphine treatments will be tested against the pest to determine the efficacy of alternative applications instead of methyl bromide, harmful to ozone layer. Tests will be conducted in Round Seedless grape and strawberry between the years of 2012 and 2014. The combinations of 1- % 45 CO<sub>2</sub> + % 6,5 O<sub>2</sub> + %48,5 N<sub>2</sub>; 2- % 45 CO<sub>2</sub> + % 11,5 O<sub>2</sub> + % 43,5 N<sub>2</sub>; 3- % 45 CO<sub>2</sub> + % 16,5 O<sub>2</sub> + %38,5 N<sub>2</sub>; 4- % 45 CO<sub>2</sub>+ % 21 O<sub>2</sub> + % 34 N<sub>2</sub> ve 5- Control (Air) will be applied to the eggs, larvae, pupae and adults of *F. occidentalis* on Round Seedless grape in cold storehouses at 0±0,5 ve 2±0,5 °C for 2, 4, 6 and 8 days. In addition, the efficiency of 2% phosphine + 98% CO<sub>2</sub> will be investigated at the temperatures mentioned above at 250, 500, 750 and 1000 ppm PH<sub>3</sub> for 1, 2 and 3 days. Besides the combinations of 1- % 90 CO<sub>2</sub> + % 2 O<sub>2</sub> + % 8 N<sub>2</sub>; 2- % 90 CO<sub>2</sub> + % 4 O<sub>2</sub> + % 6 N<sub>2</sub>; 3- Control (Air), 2% phosphine + 98% CO<sub>2</sub> will be applied in strawberry at the same temperatures at 250, 500, 750 and 1000 ppm PH<sub>3</sub> for 1, 2 and 3 days. After the determination of doses and periods causing 100% mortality in the most resistant biological stage of the pest, phosphine residues on fruits, effects of the applications on fruit quality and the combination suitable for commercial scale will be determined. Grape and strawberries fruit will be obtained from Aegean Exporters' Associations.

The technical staff in the Ministry and plants, and experts will be informed about *F. occidentalis* and the most applicable treatment. If possible, the most successful combination will be applied in commercial scale.