

# Evaluation of Created Hybrid Squashes (*Cucurbita pepo* L.) Tolerant to Powder Mildew

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## Abstract

Nineteen new squash hybrids (*Cucurbita pepo* L.) were evaluated along with two controls (commercial hybrids) for their resistance to powdery mildew, which is the main fungal disease of cucurbits. The evaluation of hybrids was conducted in pilot cultivations in Western Greece as part of the research program "Exploitation of new squash hybrid tolerant to plant diseases appropriate for organic cultivation". Actually, the created hybrids, due to their disease tolerance, make organic cultivation of squash easier and more effective, as well as the production of certified organic seeds, necessary for certified organic cultivations.

## Performance Evaluation

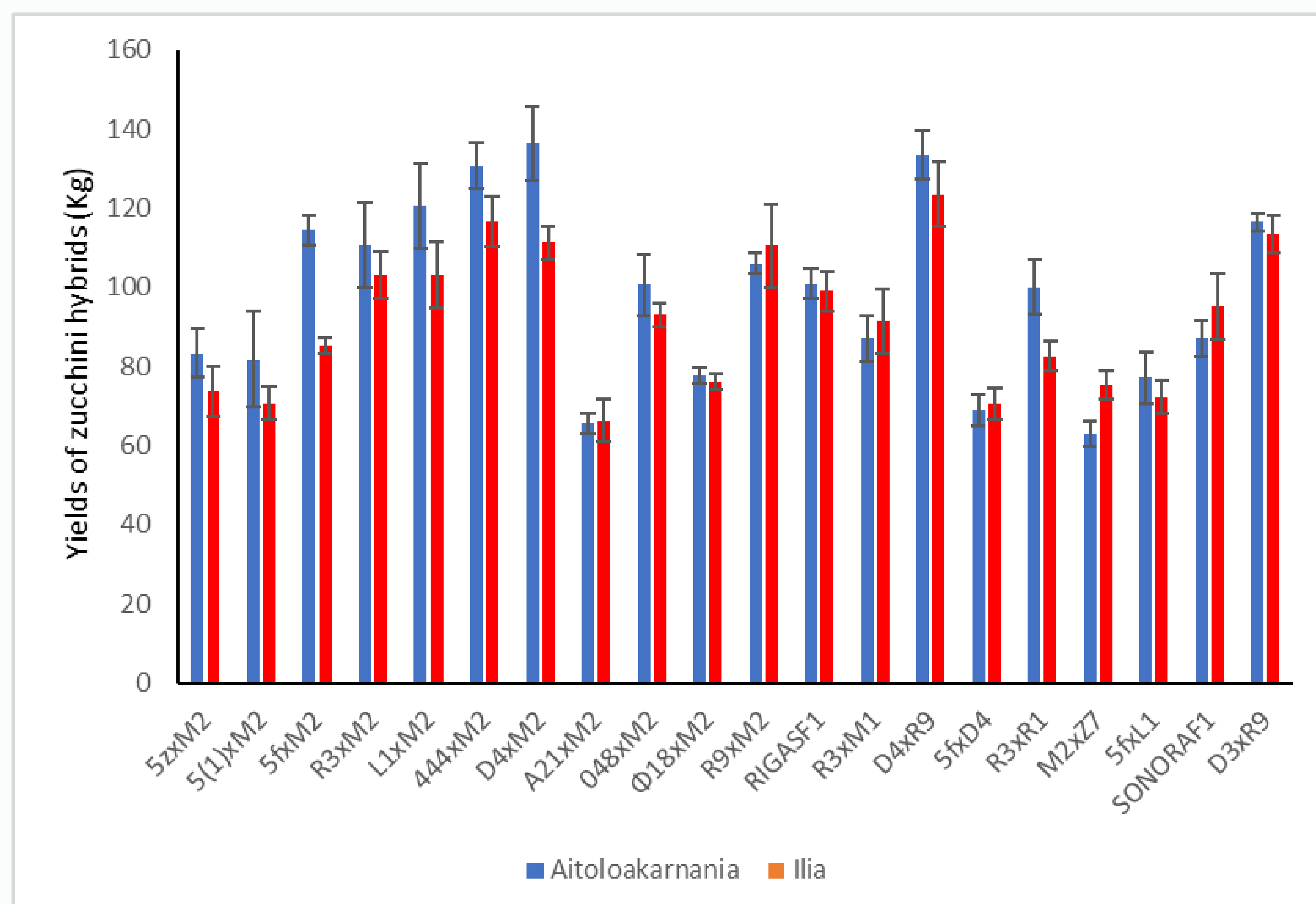
Pilot outdoor cultivations of squash hybrids were established in Missolonghi and Ilia-Achaia areas, by the Department of Agriculture of the University of Patras with the support of Lappa's Western Greece Agricultural Cooperative of Organic Farmers. In summer 2023, 19 experimental hybrids and 2 commercial hybrids (RIGAS-F1 and SONORA-F1) established at each experimental area. A full randomized experimental design with 3 replicates per hybrid was applied. The cultivation practices applied, were close related to commercial organic squash production systems. Hybrids yield and tolerance to powdery mildew were evaluated. Squash fruit yields were assessed with 2 days interval harvests from late August to late September. Plants were under inspection for potential fungal infections from mid-August till end of October. Statistically significant differences in yields were found among zucchini hybrids in both experimental areas (Fig. 1).

On the contrary, hybrids A<sub>21</sub>xM<sub>2</sub>, Φ18xM<sub>2</sub>, 5fxD<sub>4</sub> and M<sub>2</sub>xZ<sub>7</sub> resulted the lowest yields in both Aetoloakarnania and Ilia-Achaia. Intermediate yields were given by the rest of tested hybrids 5zxM<sub>2</sub>, 5<sub>(1)</sub>xM<sub>2</sub>, 048xM<sub>2</sub>, R<sub>3</sub>xM<sub>1</sub>, R<sub>3</sub>xR<sub>1</sub>, 5fxL<sub>1</sub> and SONORA F1.



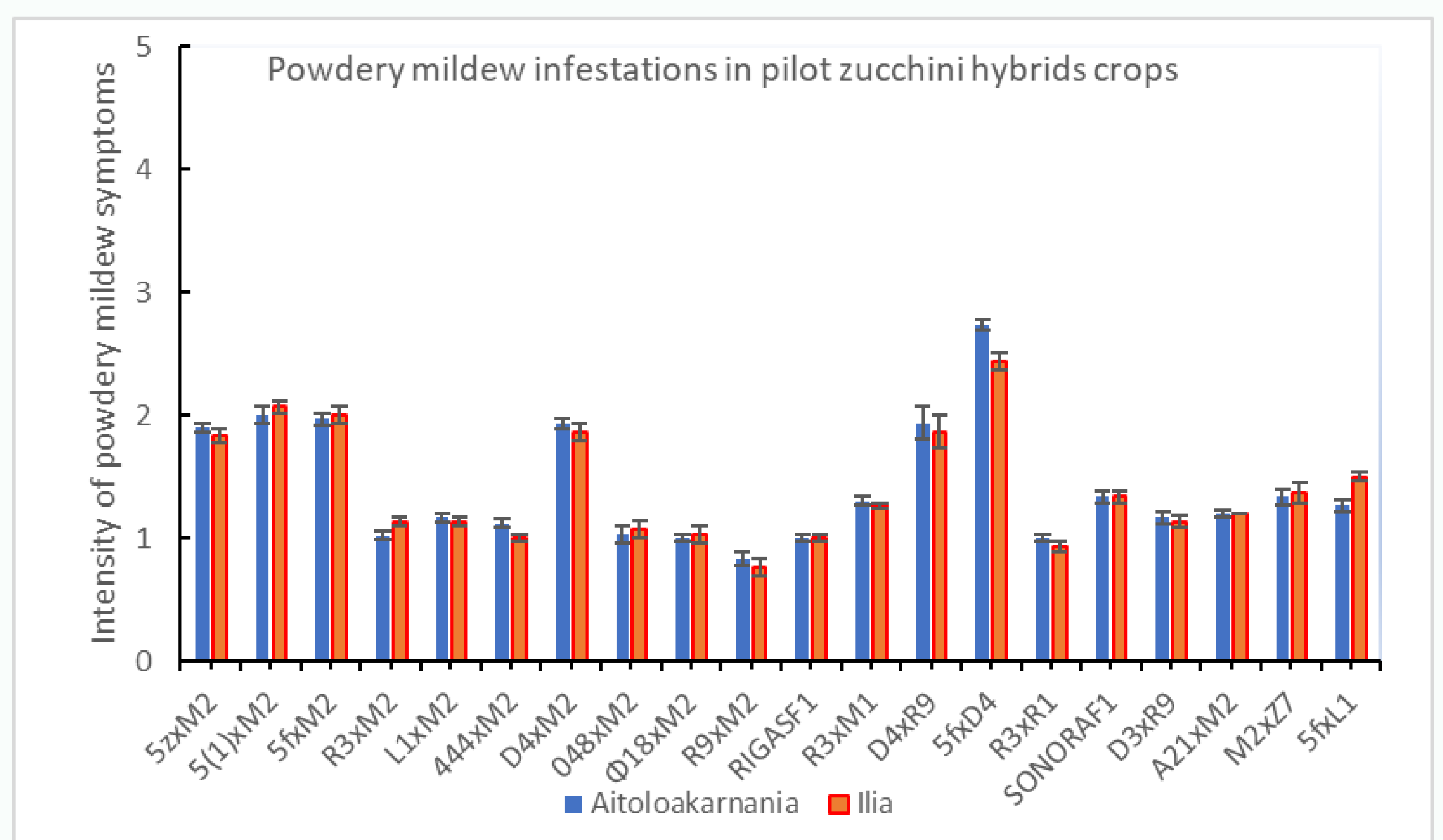
## Assessment of hybrids tolerance to powdery mildew

Powdery mildew infestations in the squash pilot crops were at low levels for all hybrids. Hybrids considered susceptible to the disease (5fxD<sub>4</sub>, D<sub>4</sub>xM<sub>2</sub>, M<sub>2</sub>xZ<sub>7</sub>, 5fxL<sub>1</sub>, 5<sub>2</sub>xM<sub>2</sub>, 5<sub>(1)</sub>xM<sub>2</sub> and 5fxM<sub>2</sub>) demonstrated higher epidemiological values than the rest of the hybrids; however the performance of the plants against disease was generally better compared to previous years. The hybrid R<sub>9</sub>xM<sub>2</sub> showed the lower powdery mildew infection levels. The hybrid had no significant differences in its responses to the biotic factor between the two pilot crops in Missolonghi and Ilia areas.



**Fig.1:** Yields of Squash hybrids

The hybrids R3xM2, L1xM2, 444xM2, D4xM2, R9xM2, RIGASF1, D4xR9 and D3xR9 achieved high yields (103 to 136 kg) in both regions, while the 5fxM2 hybrid gave higher yields only in the area of Aetoloakarnania (114.90 kg).



**Fig.2:** Intensity of Powdery mildew symptoms in pilot squash hybrids (0=absence of symptoms, 5=intense symptoms)

## Acknowledgments

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