

International industry of organic seeds and its production trials of leaf vegetables

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Abstract

In 2009 the international market values of organic foods and beverage were \$54.9 billions, and the international market sales was increased at 15-22%/year, so the organic area of crops was increased year by year. According to European Organic Regulations (EC) No 834/2007 for organic farming the organic sector has to using organic propagation materials, and to the National Organic Program Standard §205.204 that the producer must use organically grown seeds, annual seedlings, and planting stock, so the trend of organic seed requirements will be increased in future. The seed productions of organic and conventional were same except from the organic seeds must be accredited by certifying agents. An EU project of STOVE (Seed Treatment for Organic Vegetable production) aimed the control of seed-borne vegetable pathogens less than 0.01%, so the production of pathogen-free seeds will be a challenge.

For seed production of pai tsai, the registered seeds were sown on field at the 29th of October and 25th of November and yielded 114.4 and 103.3 kg/0.1ha of seeds, respectively, but the seed yields was only 20.0 kg/0.1ha when registered seeds were sown at the 28th of December. Registered seeds of gai lan (Chinese broccoli) was sown at the 6th of November and yielded 187.4 kg/0.1ha which

appeared little higher than seeds sown at the 4th of November, so the suitable date of seed sown for gai lan seed production was between November and early December. For seed production of leaf lettuce, the planting density of 30 x 40 cm yielded 24.09 kg/0.1 ha of seed which was the highest seed yield, as well as the registered seeds of pai tsai were planted with 20 x 60 cm at the 25th of October and yielded 310.8 kg/0.1 ha seeds, but the planting densities of 35 x 60 and 40 x 60 cm yielded 181.9 and 171.6 kg/0.1ha, respectively. The planting density of lettuce 20 x 30 cm yielded 49.46 kg/0.1ha, but the planting densities of 30 x 30 and 40 x 30 cm yielded 33.38 and 27.71 kg/0.1 ha, respectively.

The organic seeds of pai tsai and gai lan were dried at 40oC until seed water content being 8%, then which were dried sterilization for 0, 4, 8, 16, 32 and 64 hours, the rates of germination of the heat dried sterilized seeds were insignificant, so the heat dried sterilization of seeds is a proper technique of seed treatment.

In Taiwan the crop breeding and vegetable industry was been established well ago, and the international seed company had also produced seeds, so in Taiwan organic seed production has good potential in future.

Key words : organic agriculture, seed, pai tsai, gai lan, lettuce, seed production