

## Use of Soil Fumigants and Subjective Symptoms of Cut Flower Farmers – A Survey by Interview

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Soil fumigants are used to control pests, fungi, and weeds before planting crops. As they are highly volatile and acutely toxic, farmers are often exposed to serious risks of poisoning by inhalation and contact. We investigated the use of soil fumigants and subjective symptoms of cut flower farmers by interviewing them.

The subjects of this study consisted of 69 male farmers who came to health check, and we asked them about the names of soil fumigants they used in recent years, whether or not they wore the gas mask and the goggle, and whether they had had any subjective symptoms, and many other questions.

Of the subjects, 68% said they used Chloropicrin and 64% gave D-D. Chloropicrin tablet and carbam were used by 15% of them, respectively.

It was found that 38% of the chloropicrin users put on the gas mask, and that 32% put on the goggle. The occurrences of subjective symptoms differed with whether the farmer put on gas mask or goggle. The farmers without gas mask or goggle complained about watery eye (72%), cough (31%), runny nose (31%), breathing difficulties (21%), and eye irritation (19%).

The farmers put into practice some measures to prevent chloropicrin exposure, as follows: Using the machine with injector crawls under the ground, working when gentle wind is blowing, working when the temperature of soil is low, and using the refrigerated chloropicrin.

Some farmers and their wives informed that they had runny eye, sneeze when covering fumigated hillings with plastic films. The workers are recommended to put on the gas mask on working this process.

The use of low-permeable film, developed in recent years, could economize on soil fumigants for cultivating some corps. It is hoped that the use of this new material will spread in cut flower farming and reduce risks of fumigant exposure.

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