

# Asian Vegetables

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A number of vegetables that are traditionally associated with other regions of the world are gaining in popularity in North American markets. Many of these are considered “Oriental crops,” defined as a collection of crops of Asian origin, but now encompasses a wide variety of Asian produce. Many of these Oriental crops were brought to the United States by immigrants from the Orient.

Most Oriental crops are not well-known to American farmers, due to the fact that they are cultivated by the Chinese growers exclusively for Chinese-Americans to use. Some are in great demand by consumers in the United States and Ohio and may be considered as options for farmers.

## Pest Management, Disease and Weed Control

Many of these vegetables belong to a wide range of plant families including legumes, cole crops, cucurbits and others. Pest management strategies developed for other crops in Ohio may be helpful in these crops, since many pests and diseases are similar. There are also new and unique problems associated with these crops, and the selection of pest and weed control products available is limited. Alternative methods of weed control will have to be considered, including cultivation, hand hoeing and the use of mulching materials, since very few chemical herbicides are labeled for these crops.

Growers should ensure that seed purchased is certified disease-free or within acceptable guidelines. Many diseases that affect Oriental crops can be seed-borne. Treatment of seed may also reduce the incidence of seed-borne disease (see Seed Treatments, page 24).

Crop rotation of at least 3 years is recommended. Avoid working in the field when the crop is wet to avoid the possibility of spreading bacterial diseases. Use disease resistant varieties when they are available. Control virus disease vectors such as aphids. Control and remove weeds that can be hosts for viral diseases.

## Lime and Fertilizer

Because Oriental crops consist of a wide range of non-traditional crop types, a single fertilizer recommendation cannot be made, however a fertility and liming program based on a soil test can form the basis of a good crop fertility program. Most crops will require a correct balance of nitrogen, phosphorus and potassium as well as an understanding of the individual crop's requirement and response to micronutrients ( B, Zn, Mg, Mn, Cu, Mo, Ca, etc.). Experience of fertility requirements of traditional Ohio vegetable crops will be helpful when determining a program for these Oriental crops.

## Marketing

In Ohio, agriculture production and acreage statistics are not reported for any of the Oriental crops that have been researched. A majority of the U.S. Oriental crops production acreage is located in California. Some production, postharvest handling, and marketing information is available from the state of California but is targeted only for that region.

Marketing information for Oriental crops is not widely published. Since Oriental crops are niche items in the produce marketplace, only specialized produce companies deal in these products. Most of these buyers deal with restaurants, some chain stores, and specialty food stores. Few Oriental crops are sold through retail farm markets in Ohio. U.S. Department of Agriculture (USDA) market reports are published daily by the fruit and vegetable market news, on produce prices at U.S. terminal markets and terminal markets around the world. Of the Oriental crops researched in our field trials, wholesale terminal market prices are only reported for Chinese cabbage. In Ohio, information and feedback from consumers and users of Oriental crops is hard to collect due to the language and cultural barriers and limitations.

Some of these crops could be considered by growers for a double crop situation, i.e., following a wheat or early cabbage or sweet corn crop. Growers wanting to diversify their current farming operations by including any of the Oriental crops need to be very **cautious** before beginning production. Markets and buyers need to be established **before** any seeds are purchased.

Budgets and further economic data need to be gathered on these crops before profit potential can be determined. All crops are very labor intensive, therefore a strong and dependable labor force will be required for timely harvest and cultural practices.

## Insecticides for Asian Vegetables

| Insecticide Product        | Target pest <sup>a</sup> | Minimum number of days between last application and harvest |   |  |  |  |  |  |   |
|----------------------------|--------------------------|---|---|--|--|--|--|--|---|
|                            |                          | Bok choy & other leafy Brassica in sub-group 5B             | Napa & other heading Brassica in sub-group 5A | Chinese spinach & other leafy greens in sub-group 4A | Chinese celery & other leaf petioles in sub-group 4B | Oriental radish & other root crops in sub-group 1A | Chinese artichoke & other tuber/corn in sub-group 1C | Chinese wax-gourd & other squash in sub-group 9B | Citron-melon & other melons in sub-group 9A |
| <b>ORGANO-PHOSPHATES</b>   |                          |   |   |  |  |  |  |  |   |
| Diazinon                   | A, C, LM                 | 10  | 10  | -  | -  | -  | -  | -  | -   |
| Dibrom                     | A, C                     | -   | 1   | -  | -  | -  | -  | -  | -   |
| Di-Syston                  | A, BE                    | -   | 42  | -  | -  | -  | -  | -  | -   |
| Lorsban                    | RM                       | 30 <sup>b</sup>   | 30 <sup>b</sup>                               | -  | -  | -  | -  | -  | -   |
| Malathion                  | A, BE, C                 | 7   | 7   | 7  | -  | -  | -  | -  | -   |
| MSR                        | A, T                     | -   | 7   | -  | -  | -  | -  | -  | -   |
| <b>CARBAMATES</b>          |                          |   |   |  |  |  |  |  |   |
| Lannate                    | C                        | 10 <sup>b</sup>   | 10 <sup>b</sup>                               | -  | -  | -  | -  | 1; 3   | 1; 3  |
| Larvin                     | BE, C                    | -   | -   | 14   | 14   | -  | -  | -  | -   |
| Sevin                      | BE, C, BU                | 14 <sup>b</sup>   | 14 <sup>b</sup>                               | -  | -  | -  | -  | -  | -   |
| <b>PYRETHROIDS</b>         |                          |   |   |  |  |  |  |  |   |
| Ammo                       | BE, C, T, BU             | 1   | 1   | -  | -  | -  | -  | -  | -   |
| Asana                      | BE, C                    | -   | 3   | -  | -  | -  | -  | -  | -   |
| Baythroid                  | BE, C, T, BU             | -   | 0   | -  | 0  | -  | 0  | 0  | 0   |
| Capture                    | BE, C, T, BU, W          | 7   | 7   | -  | -  | -  | 21   | 3  | 3   |
| Danitol                    | C                        | -   | 7   | -  | -  | -  | -  | 7  | 7   |
| Decis                      | C, BE, BU                | -   | -   | -  | -  | 3  | 3  | 3  | 3   |
| Hero                       | C, BE, T                 | -   | 7   | -  | -  | -  | -  | -  | -   |
| Mustang Max                | BE, C, T, BU             | 1   | 1   | 1  | 1  | 1  | 1  | 1  | 1   |
| Permethrin                 | BE, C, T, BU             | -   | 1   | 1  | 1  | -  | -  | 0  | 0   |
| Proaxis                    | BE, C, BU                | -   | 1   | -  | -  | -  | -  | -  | -   |
| Warrior                    | BE, C, BU                | -   | 1   | -  | -  | -  | -  | -  | -   |
| <b>NEONICOTINOIDS</b>      |                          |   |   |  |  |  |  |  |   |
| Actara                     | A, BE, W                 | 7   | 0   | -  | -  | 7  | 14   | 0  | 0   |
| Admire                     | A, W, T, BE              | 21  | 21  | 21   | 45   | 21   | 3; 125   | 21   | 21  |
| Platinum                   | A, BE, W                 | 30  | 30  | -  | -  | ✓  | -  | 30   | 30  |
| Provado                    | A, W, BE                 | 7   | 7   | 7  | -  | -  | 7  | -  | -   |
| Venom                      | A, W, LM, T              | -   | 1; 21   | 7; 21  | 7; 21  | -  | -  | 1; 21  | 1; 21                                       |
| <b>OTHER NERVE POISONS</b> |                          |   |   |  |  |  |  |  |   |
| Agri-Mek, Abba             | M, LM                    | -   | -   | 7  | -  | -  | -  | 7  | 7   |
| Avaunt                     | C                        | 3   | 3   | -  | 3  | -  | -  | -  | -   |
| Beleaf                     | A                        | -   | 0   | 0  | 0  | -  | -  | 0  | 0   |
| Fulfill                    | A, W                     | 7   | 7   | -  | 7  | -  | 14   | 0  | 0   |
| Proclaim                   | C                        | 7   | 7   | -  | -  | -  | -  | -  | -   |
| Pyrethrins + PBO           | A, C, BE, BU, T          | 0   | 0   | 0  | 0  | 0  | 0  | 0  | 0   |
| Radiant                    | C, T, LM                 | 1   | 1   | -  | -  | 3  | 7  | 3  | 3   |
| SpinTor                    | C, LM, T                 | 1   | 1   | -  | -  | -  | 7  | 3  | 3   |

<sup>a</sup>A = aphids; BE = beetles; BU = bugs; C = caterpillars; LM = leafminers; M = mites; RM = root maggot; T = thrips; WF = whiteflies.

<sup>b</sup>Approved for use on Chinese cabbage, type not specified; not approved for other crops in crop group.

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| <b>INSECT GROWTH REGULATORS</b>   |                          |   |   |  |  |  |  |  |   |
| Confirm   | C                        | 7   | 7   | 7  | 7  | -  | -  | -  | -   |
| Esteem  | W                        | 7   | 7   | -  | -  | -  | -  | 7  | 7   |
| Intrepid  | C                        | 1   | 1   | 1  | 1  | 14   | -  | 3  | 3   |
| Neemix & others   | C, LM, A, W              | 0   | 0   | 0  | 0  | 0  | 0  | 0  | 0   |
| Rimon   | C, LM                    | -   | 7   | -  | -  | -  | -  | -  | -   |
| Trigard   | LM                       | 7   | -   | -  | -  | -  | -  | 0  | 0   |
| <b>MISCELLANEOUS</b>  |                          |   |   |  |  |  |  |  |   |
| DiPel (B.T.)  | C                        | 0   | 0   | 0  | 0  | 0  | 0  | 0  | 0   |
| Mycotrol-O  | W, BE, A                 | 0   | 0   | 0  | 0  | 0  | 0  | 0  | 0   |
| Oberon  | M, W                     | 7   | 7   | 7  | 7  | -  | 7  | 7  | 7   |
| Soap  | A, M, W, T               | 0   | 0   | 0  | 0  | 0  | 0  | 0  | 0   |
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## Nomenclature

The crops of Asian origin have different names depending upon the language used. The list below summarizes some of the crops that have performed well in research trials in Ohio. The crop must be identified properly when it comes to marketing the product, as well as when selecting appropriate pest control measures since common names vary depending on the language used (Chinese, Mandarin or Cantonese, Vietnamese, Korean, or Japanese, for example).

1. Mustard Spinach
2. Daikon Radish
3. Asparagus (Yard Long) Bean
4. Napa Cabbage
5. Thick Petiole White Chinese Leaf Cabbage
6. Red or Green Mustard (Mizuna)
7. Thin Petiole White Chinese Leaf Cabbage
8. Bitter Melon
9. Winter Melon
10. Japanese Greens
11. Chinese Cabbage
12. Oriental Eggplant
13. Edible Luffa Gourd