



## Практичне заняття № 2

Read and translate into Ukrainian the following texts:

### WINDOWSILL MICROPROPAGATION?

After breeding *Verbascum* hybrids for a few years, we needed a different reliable method of propagation which would allow us to produce at least a dozen plants from a single specimen. When a new hybrid is bred, there is only the single plant and digging it up to make root cuttings can cause serious damage. Traditionally, clones would be produced by taking root-cuttings about 2.5 cm/1 in long or even longer. Initially we used this method and found that you could grow a few extra plants quite easily, but a dozen or so plants meant chopping up to 30 cm/1 ft or more off the root. We began to wonder just how small you could make the cuttings. Pieces about 1 cm/½ in long were found to grow very easily. We then tried pieces only 5 mm/¼ in long and they gave equally good results, so we kept reducing the size of the cuttings until we discovered that pieces only 2 mm/ 1/12 in long would grow successfully.

Suddenly we discovered that some very odd things were happening. We always took care that these thin slices were planted the right way up, pressing them into the surface of the compost so that the top of the slice was visible after planting. Apparently, the thin root discs would lose their polarity and produce sprouts on the 'wrong' side and often the slices would split and fail to grow. It became apparent that the splitting was due to the upper surface drying out more than the lower which was in contact with the moist compost.

Since the polarity of the root slices seemed to be unimportant when they were very thin, we decided to try planting them on the edge so that both flat surfaces were equally in contact with the compost. This solved the problem of splitting and we were soon experimenting with slices only 1mm/ 1/25 in thick, most of which grew perfectly well. We were then able to obtain material for propagation by simply excavating a small hole beside a specimen plant, locating a suitable root and taking only a few centimeters from it with a sharp knife. Although we have only used this method with *Verbascum*, it could well work with other plants which are usually propagated by root cuttings, such as oriental poppies and lupin cultivars. We would be interested to hear from readers who try.

Very fine textured compost is essential. We use a peat-based seed compost, passed through a 4 mm/ 1/6 in-mesh sieve and, for



*Verbascum*, add chalk. Other types of plants may need different composts. We use trays of thimble-sized cells (20 × 20 mm/ ¾ in × ¾ in), standing on capillary matting in an unheated propagator. The cells are pre-watered and the thinly-sliced cuttings are inserted in slits made with a penknife blade in the surface of the compost. After planting, the edge of the cutting is just visible at the surface. A razor blade and some manual dexterity are needed but we have grown 800 plants this way so far this year using the kitchen and bathroom windowsills.

### *PLANTS FOR GARDEN PONDS*

**Oxygenating plants.** Oxygenating plants provide shelter for spawning fish and they fry, as well as releasing oxygen directly into the water in strong light. They also take up mineral salts from the water that would normally encourage the growth of algae. A dozen or so should be planted in a small container and allow one container to every 2 m<sup>2</sup> in a small pool, but as the pool enlarges relatively fewer containers are needed; a pool of over 55 m<sup>2</sup> would require twenty containers. If the plants become too prolific it is a simple matter to lift out a few containers to allow more space.

**Deep water and marginal plants.** There are many aquatic plants that grow in deep water. Their roots need soil and this is best kept in a container, allowing the plant to be lifted out of the water for pruning, treating for pests and diseases and for feeding. The container can be a box, pot, basket or a proprietary plastic container. The soil should be plain with the addition of bone meal; some charcoal lumps will help to keep the soil sweet.

Some plants float on the surface with trailing roots that pick up nutrients from the water and these can be easily lifted out and thinned if they spread too far.

**Marginal plants** in the main have their rootstocks just under the water with their leaves and flowers held well above the surface. Here again, containers should be used to allow the plant to be lifted out, thinned and stopped from taking over the pond. Many aquatic plants are invasive.

**Water lilies.** The water lily is justifiably the most popular of water plants. It has brilliant blooms and at the same time its leaves cover the water surface to provide both shelter to fishes and welcome shade that prevents excessive algae growth, in addition, water lilies – all species and hybrids of *Nymphaea* – are available in a variety of sizes to suit the size and depth of any pond, from the pygmy types that



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need just a shallow covering of water to the more vigorous types that would swamp a small pond completely and need deep water to prevent the leaves from standing proud of the surface.

Water lilies should be grown in containers. They will give sufficient anchorage and nutrition while stopping the plant from outgrowing the pond. They will also allow easy access to the plant for maintenance, treatment for disease or pest attack, and feeding. Containers allow a certain flexibility of position and can be adjusted to give the right depth of water over crown of the plant; this is achieved by inserting bricks or other inert material under the container to raise it.

There are two main groups of water lilies: the hardy and the tropical. In temperate zones the hardy ones are fine for outdoor ponds; the tropical lilies are only suited to indoor and outdoor ponds where the water temperature is maintained at 21° C throughout the year.

The best soil to grow water lilies in is a heavy loam well-fortified with bone meal (approximately 0.1 liters per 4.5 liters of soil). Animal manures are not recommended as the water becomes over rich with nutrients that will encourage algae growth. Should the loam be poor quality and low in nitrogen mix some dried blood into the soil. The roots should be well anchored by ramming the soil well down in the container, leaving some room for a layer of shingle or gravel over the soil to prevent fish from stirring up the fine particles and making the water cloudy.

Water lilies need sun, plain soil and the right depth of water. Given these they will reward the gardener with a prolific show of flowers from early summer onwards.

Bog plants. Stretches of open water are often surrounded by wetlands, areas of constantly moist soil where the water table is just beneath the surface. A number of plants have adapted their root system to cope with this high moisture level. Many of these 'bog plants' have brightly colored flowers and interesting leaf shapes and make fine subjects for planting near a garden pond.

### *RADISH*

Soil facts. All gardening books will tell you that radishes require fertile, well-drained soil, rich in humus and free from stones. But radishes generally have to put up with what they are given. Despite this lowly status, they must be given some soil preparation to ensure the quick growth so necessary for tenderness and flavor. Dig in some



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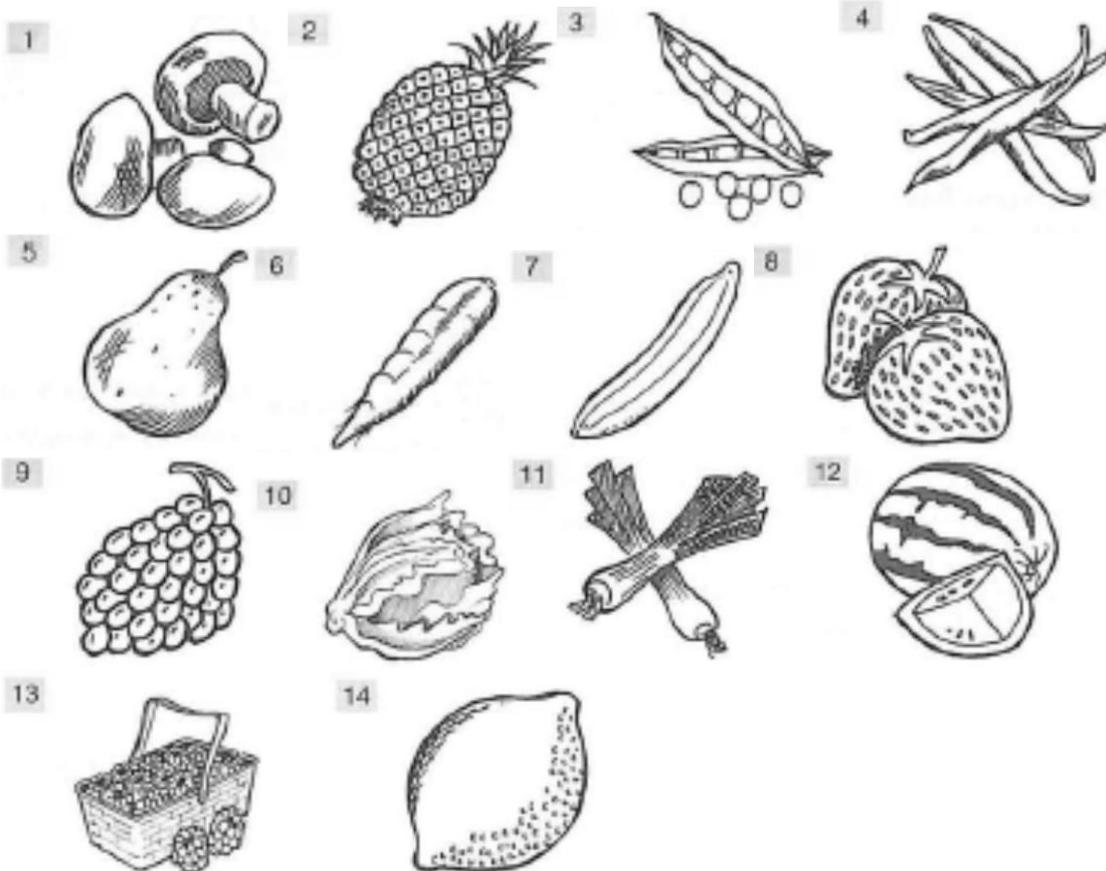
peat or well-rotted compost. Apply a fertilizer before sowing and rake to a fine tilt.

Looking after the crop. With the Summer varieties little or no thinning should be necessary. If there is any overcrowding then thin immediately so that the plants are 1-2 in. apart. Protect the crop against birds. Spray with Derris or Crop Saver if Flea Beetle begins to perforate leaves. Hoe to keep down weeds. Water if the soil is dries; rapid growth must not be checked.

Harvesting. Pull the Summer varieties when the globular ones are penny-sized and the intermediates are no longer than you thumb. They can, of course, grow much longer, but these overgrown specimens would be hot, woody and hollow. The winter varieties can be left in the soil and lifted as required during the winter. But it is better to lift them in November and store as for carrots.

 Write the numbers of the corresponding figures.

Beans \_\_\_ Carrot \_\_\_ Cucumber \_\_\_ Grapes \_\_\_ Leeks \_\_\_ Lemon \_\_\_  
Lettuce \_\_\_ Mushrooms \_\_\_ Pear \_\_\_ Peas \_\_\_ Pineapple \_\_\_  
Raspberries \_\_\_ Strawberries \_\_\_ Watermelon \_\_\_



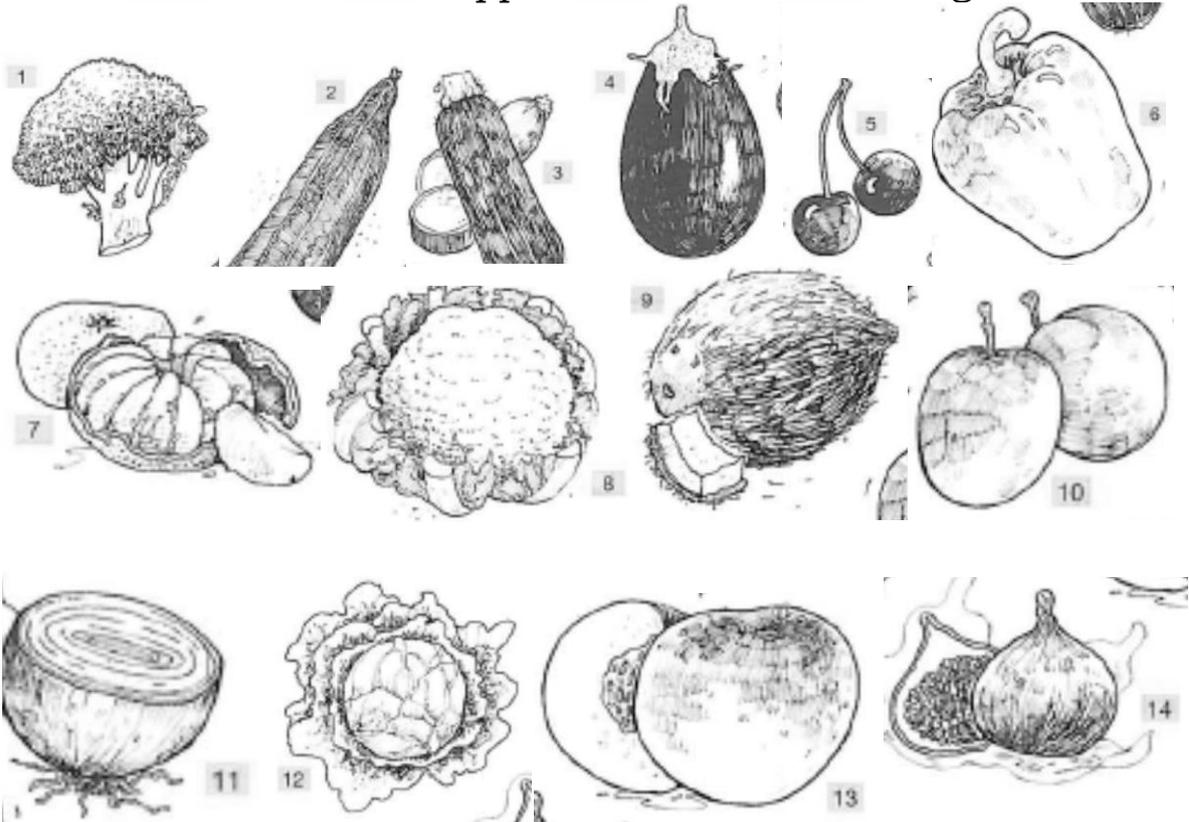
 Write the numbers of the corresponding figures.

Aubergine \_\_\_ Broccoli \_\_\_ Cabbage \_\_\_ Cauliflower \_\_\_



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Cherry \_\_\_\_ Coconut \_\_\_\_ Courgette \_\_\_\_ Cucumber \_\_\_\_ Fig \_\_\_\_  
Onion \_\_\_\_ Peach \_\_\_\_ Pepper \_\_\_\_ Plum \_\_\_\_ Tangerine \_\_\_\_



✎ Write the suitable words using words given below: blackberries, blackcurrants, cherries, kiwifruit, mango, melon, strawberries.

