**CIHM
Microfiche
Series
(Monographs)**

**ICMH
Collection de
microfiches
(monographies)**

Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1997

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming are checked below.

- ☐ Coloured covers / Couverture de couleur
- ☐ Covers damaged / Couverture endommagée
- ☐ Covers restored and/or laminated / Couverture restaurée et/ou pelliculée
- ☐ Cover title missing / Le titre de couverture manque
- ☐ Coloured maps / Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black) / Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations / Planches et/ou illustrations en couleur
- ☒ Bound with other material / Relié avec d'autres documents
- ☐ Only edition available / Seule édition disponible
- ☒ Tight binding may cause shadows or distortion along interior margin / La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure.
- ☐ Blank leaves added during restorations may appear within the text. Whenever possible, these have been omitted from filming / Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- ☐ Additional comments / Commentaires supplémentaires:

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier l'image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- ☐ Coloured pages / Pages de couleur
- ☐ Pages damaged / Pages endommagées
- ☐ Pages restored and/or laminated / Pages restaurées et/ou pelliculées
- ☒ Pages discoloured, stained or foxed / Pages décolorées, tachetées ou piquées
- ☐ Pages detached / Pages détachées
- ☒ Showthrough / Transparence
- ☒ Quality of print varies / Qualité inégale de l'impression
- ☐ Includes supplementary material / Comprend du matériel supplémentaire
- ☐ Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image / Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.
- ☐ Opposing pages with varying colouration or discolourations are filmed twice to ensure the best possible image / Les pages s'opposant ayant des colorations variables ou des décolorations sont filmées deux fois afin d'obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below / Ce document est filmé au taux de réduction indiqué ci-dessous.

10x		14x		18x		22x		26x		30x	
								☒			
	12x		16x		20x		24x		28x		32x

The copy filmed here has been reproduced thanks to the generosity of:

Library
Agriculture Canada

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche sheet contains the symbol → (meaning "CONTINUED"), or the symbol ∇ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:

1	2	3
---	---	---

1	2
4	5

L'exemplaire filmé fut reproduit grâce à la générosité de:

Bibliothèque
Agriculture Canada

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur le dernière image de chaque microfiche, selon le cas: le symbole → signifie "A SUIVRE", le symbole ∇ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents.

Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.

MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)

APPLIED IMAGE inc

1653 East Main Street
Rochester, New York 14609 USA
(716) 482-0300 - Phone
(716) 288-5989 - Fax

CIRCULAR No. 15
DOMINION OF CANADA

DOMINION EXPERIMENTAL FARMS

J. H. GRISDALE, B.Agr.,
Director.

W. T. MACOUN,
Dominion Horticulturist.

Selection and Wintering of Biennial Vegetables for Seed

By W. T. Macoun.

By the term "biennial" vegetable is meant one which takes two seasons to produce seed. The vegetable must be stored over the first winter and replanted, for seed production, the following spring. Some well-known vegetables of this class are beet, cabbage, carrots, celery, parsnips, salsify and turnips. Seed from these can easily be grown in Canada if the vegetables to be so used are kept in good condition over the winter. Some information on the selection and storing of roots and plants intended for seed production is herewith given.

Unless a rigid selection is made, each year, of specimens which are true to type it will not be long before a large proportion of the crop will be not true to type; hence great care should be taken to select well-shaped, medium-sized roots, typical of the variety, of beets, carrots, parsnips, salsify and turnips, firm-headed cabbage true to type, firm stalked and disease-resistant plants of celery, and firm, shapely onion bulbs. If this is done and varieties are kept far enough from others so that they will not cross the crop from Canadian grown seed should compare favourably with imported seed in regard to purity, as it does in other characteristics.

The methods of wintering vegetables for seed will vary in different parts of Canada but in most places it will be necessary to give them some protection. When possible, it is best to store them in a frost-proof cellar. But, if necessary, the vegetables may be stored outside, both in small and in large quantities, except in the case of onions, which must be kept dry, and stored in a cool place where there is little or no frost.

Cabbage.—One of the simplest and most successful methods of wintering cabbage at Ottawa has been to place the plants side by side, heads up, in a trench or pit, the top of the heads being about six inches below the level of the ground, the trench being refilled with soil to the bottom of the heads. About a foot of straw is placed over the heads and, when cold weather sets in, from six to eight inches of soil is put over the straw. Forest leaves, no doubt, would prove as satisfactory as straw. When winters are not very severe or where a heavy covering of snow is fairly sure, the cabbage may be simply heeled in with the heads above ground and the litter covered with leaves or straw just before severe frosts. There should be only a light covering at first to help prevent heating and rotting, and later a heavier application when the weather becomes cold.

Celery.—Good results have been obtained at Ottawa by wintering celery for seed purposes as follows: The plants are set in a trench deep enough so that the tops of the celery come even with the surface of the ground. The plants are set close together in the row, but each row is separated by soil. Before severe frosts, the plants are covered with a heavy layer of straw and when cold weather sets in with about fifteen inches of soil. In 1917 nearly every plant came through the winter with the heart in good condition, which is all that is necessary to ensure good crops of seed.

Beets, Carrots, Parsnips, Salsify and Turnips.—When harvesting, the tops are cut to within two inches of the end of the specimen, thus leaving the central shoot. This is better than cutting off the leaves close to the root. The pit in which good success has been obtained in wintering roots at Ottawa is made as follows: A hole is dug of the necessary dimensions, six inches deep, in a well-drained place. Poles are laid on the ground and covered with boards, leaving about five inches of air space under the flooring. A sink hole three feet deep is dug six feet away from the pit. An inverted trough-shaped pipe connecting this hole with the air space under the pit gives a chance for air circulation and drainage of any water that might soak in. The roots are put in bags to separate them better, though this is not always necessary, and piled three tiers high, running to a peak. A peaked roof of boards is put over the pit, high enough above the bags to allow about fifteen inches of straw to be packed in between; over the roof is put a light coat of straw and then fifteen inches of soil. A vent hole nine inches square is left in the centre of the roof. Before hard frost the sink hole is filled with straw and covered with boards and twelve inches of soil. The covering with soil should be deferred until cold weather sets in to avoid danger of heating, and during the winter the temperature inside the pits should be taken if the pits are large. In many places parsnips may be left in the ground over winter and transplanted in the spring when better results will be obtained than if pitted, as they are very hardy.