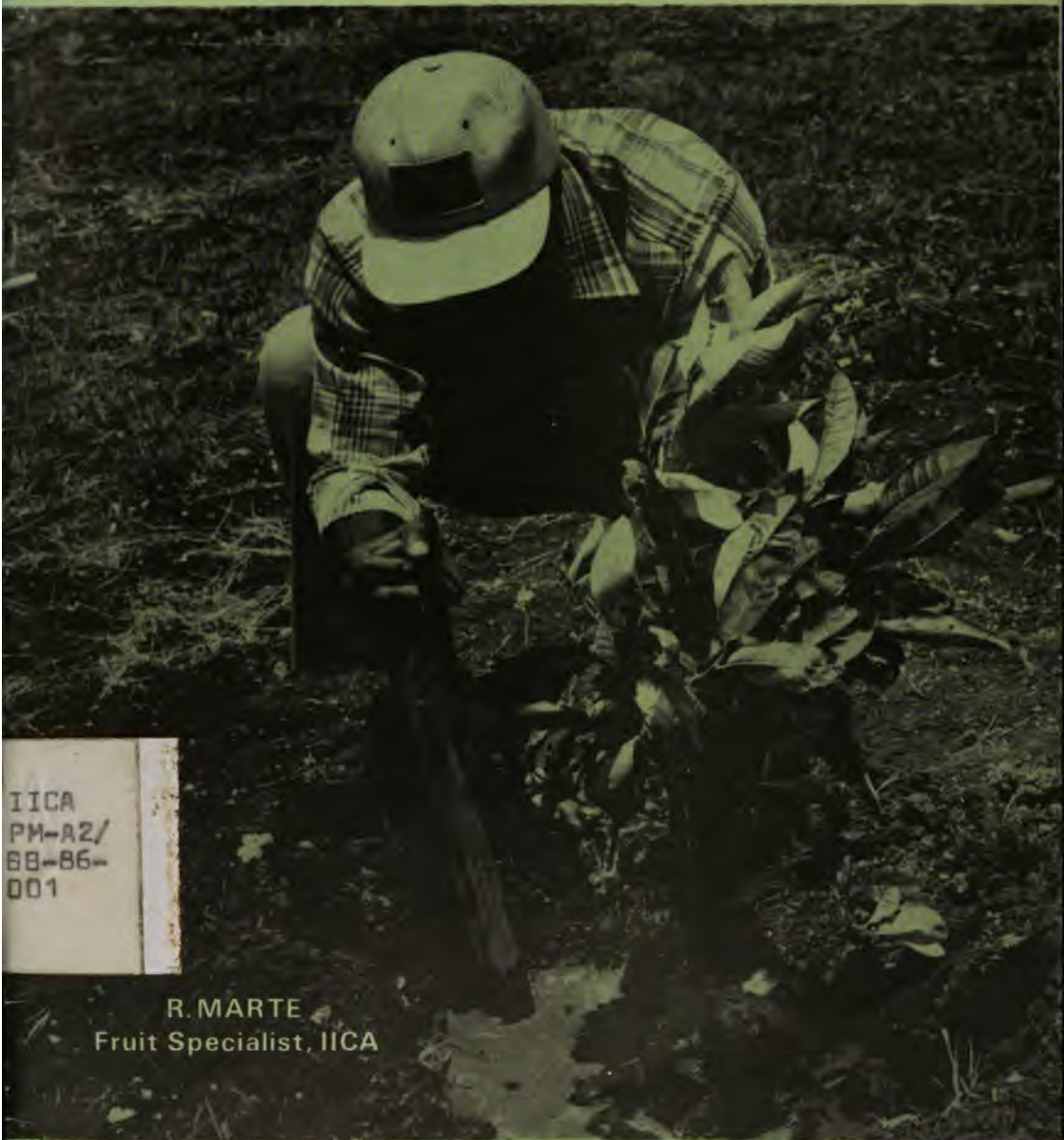


PLANTING AND EARLY CARE OF YOUR FRUIT TREES



IICA
PM-A2/
68-86-
001

R. MARTE
Fruit Specialist, IICA

IICA



INSTITUTO INTERAMERICANO DE COOPERACION PARA LA AGRICULTURA
INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE
INSTITUT INTERAMERICAIN DE COOPERATION POUR L'AGRICULTURE
INSTITUTO INTERAMERICANO DE COOPERACÃO PARA A AGRICULTURA

Miscellaneous Publication Series
No. A/2 BB-86-001 / ISSN-0534-5391

Bridgetown, Barbados
July 1986

ERRATA

<u>Page</u>	<u>Paragraph</u>	<u>Line</u>	<u>Reads</u>	<u>Should read</u>
111	2nd	4	wich	which
111	3rd	3	inproper	improper
1	3rd	2	avilability	availability
4	6th	3	wich	which
5	6th	1	well established	well-established,
8	2nd	1	mund	mound

Centro Interamericano de
Documentación e
Información Agrícola

04 ENE 1988

IICA — CIDIA

**PLANTING AND EARLY CARE
OF YOUR FRUIT TREES**

R. Marte
Fruit Specialist, IICA



INSTITUTO INTERAMERICANO DE COOPERACION PARA LA AGRICULTURA
INTER-AMERICAN INSTITUTE FOR COOPERATION ON AGRICULTURE
INSTITUT INTERAMERICAIN DE COOPERATION POUR L'AGRICULTURE
INSTITUTO INTERAMERICANO DE COOPERACÃO PARA A AGRICULTURA

Miscellaneous Publication Series
No. A/2 BB-86-001 / ISSN-0534-5391

Bridgetown, *

NCA
PM-A2/B3

86-001

82V-~~1514~~

00000876

TABLE OF CONTENT

	Page
Preface	iii
Acknowledgement	iv
Selecting the Site	1
Selecting the Tree at the Nursery	1
Preparing the Site	4
Planting the Tree	5
Care of the Young Tree	5
- Weeding	5
- Watering	5
- Temporary windbreaks	9
- Pruning	9
- Fertilization	9
- Pest and disease control	9

P R E F A C E

In Barbados and other areas of the Caribbean, fruit trees have become popular in both commercial and noncommercial groves including back and front yard plantings.

Like other trees, fruit plants give shade, reduce contamination by helping purify the air, and lessen typical urban noises. They can also be used as ornamental plants to enhance the landscape. Furthermore, these trees are unique in providing fruits which are rich sources of essential vitamins and minerals needed in our daily diet and essential for our survival.

If well-kept (well-tended), and managed, commercial plantings represent a good economic investment. Nevertheless, many fruit trees do not survive because of the improper planting techniques and early care of young trees. The ideas presented in this publication can perhaps help these difficulties, and lead to a healthy fruit orchard for your benefit and the country's.

ACKNOWLEDGEMENTS

The author acknowledges the logistic support of the Ministry of Agriculture and Natural Resources in Barbados which made this publication possible. The support received from the staff of the IICA Office in Barbados specially from Mr. Edgar Porsche, Peace Corp Volunteer attached to this office is gratefully acknowledged for their contribution in the editing of this bulletin. Our thanks are also extended to Mr. Raul Pineda of IICA, Dominican Republic, for his invaluable aid. This publication has been financed with Quotas funds within the Fruit Crop Development Project, IICA, Barbados Office.

SELECTING THE SITE

The suitability of a site for a fruit grove is determined by many factors: The specie and the cultivar* to be grown, soil type, topography, drainage, texture and organic matter of the area, the accessibility of the property, the land use and value, taxes, wind, water, humidity and temperature. All of them are important factors to consider.

For example, mangoes and citrus will sustain drainage and wind difficulties better than avocados. Also, the land may be suitable for most crops but not easily accessible. Land value and property taxes can be too high to grow one fruit species but not another.

The removal of the excess water in poorly-drained areas is a limiting problem for any fruit species, but the availability of irrigation water to supplement a water deficiency is important as well.

For dooryards** and other areas, plant fruit trees in open sunlight not under other trees or too close to any building. The necessary space for the development of a good canopy is important to guarantee a good tree performance. Reject any low depression where water stands since waterlogging will be one of the main enemies of your tree.

There is no simple and fast rule to determine what is a good or a poor grove site. An analysis of all of these factors and others is needed to decide whether or not any specific site fits our requirements.

SELECTING THE TREE AT THE NURSERY

Unlike in non-tropical areas, tropical fruit trees can be planted any time of the year provided water is available.

In all cases select healthy, vigorous trees with a well formed canopy and high bud union (minimum 6 inches). Be sure the tree is properly identified and that it corresponds to the desired cultivar, especially in regard to either early or late-bearing cultivars. Trees with mature growth should be preferred, since plants with new growth will suffer during transport and transplanting. (Picture 1 & 2)

Plants which look healthy, have a smooth bark free of scars, and do not show roots emerging from the containers are the best choice (Picture 3).

* Horticultural term for variety
** Back and front yard planting.



PICTURE 1: Nursery trees showing new growth are very susceptible to damage. They suffer during transport and transplanting.

PICTURE 2: Nursery trees not showing new growth tolerate better the shocks of transport and transplanting.

Discard plants with extensive roots coming out from the bottom of the containers because a) they have been there for a long time and b) the root system could be easily contaminated by any pathogen*.

* carrier of disease or parasite.



PICTURE 3: The above trees are mature enough to be transplanted but the root systems are exposed. Trees in that condition suffer more during transplanting and may easily die or take longer to recuperate.

PREPARING THE SITE

For commercial orchards it is always beneficial to plough and harrow the soil before planting. For dooryard planting, spading the soil around the plant site is usually enough.

Long before planting, design the drainage and establish windbreaks if both are needed.

For laying out the field, take into consideration the wind direction, topography, and the method and spacing of planting. Request assistance from the extension service of the Ministry of Agriculture, if needed.

After laying out the site, eliminate all weeds and vegetation around the area (1 to 2m in diameter) where the tree is to be planted. The immediate area of the planting spot should then be spaded and if manure or any other source of organic matter is available, it should be incorporate into the soil.

Be sure that the site is well drained. If dealing with heavy soil it is always recommended to raise the soil level at the planting spot. The hole should be dug large enough to accommodate the root system after roots are spread out. As a rule the hole should always be at least twice the size of the container in which the tree is grown (Fig. 1).

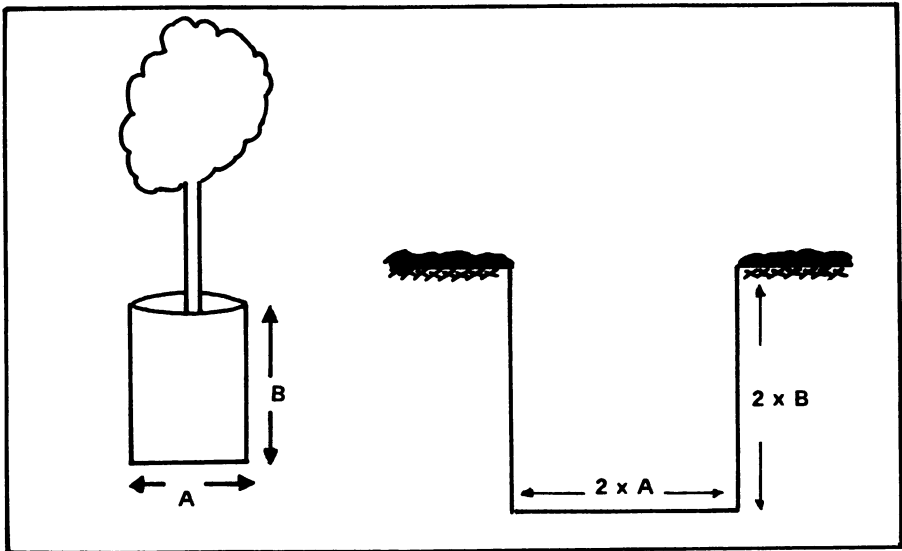


FIGURE 1: The proper size of the hole to accommodate the ball of soil and the root system of the young tree is important. As a general rule the hole should be at least twice the width and height of the container in which the tree is grown.

PLANTING THE TREE

There should always be a balance between the foliar and root systems (Picture 4). When transplanting, especially if bare-rooted, the root system always suffers from broken or damaged roots which should be clipped near the damage area. In such cases, the removal of some of the leaves and small branches is needed in order to maintain balance. This operation, rather than hurting the plant, will increase its chances of survival.

Containers should be removed completely and, if you notice the root ball is growing in spirals, vertical slashes should be made about one inch deep to promote root branching. In some cases the potting mixture will become difficult to permeate with water. In such cases it is recommended to remove the outer layer of the ball by washing it so that some of the roots can be exposed and extended into the soil of the hole.

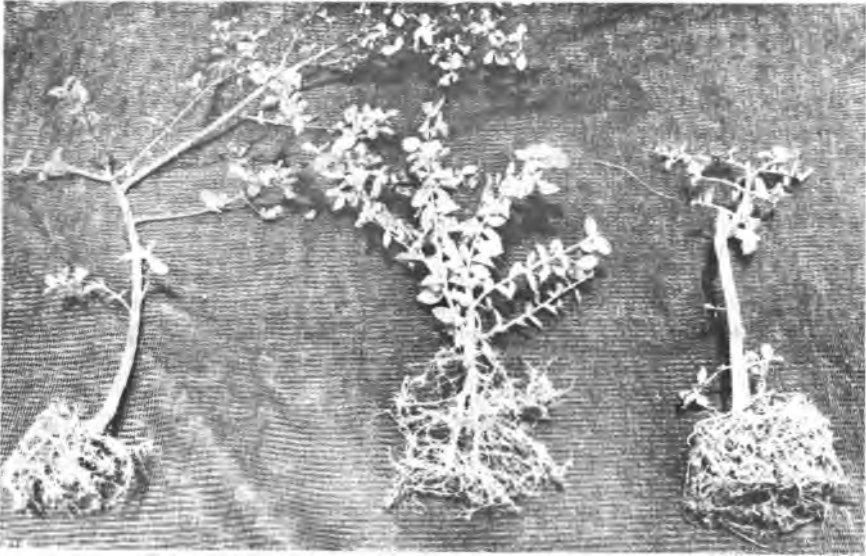
The physical and chemical properties of the soil to fill the hole should be improved, especially if dealing with sandy or clay soil. Mix well-decomposed manure and mineral fertilizer (e.g. one half pound of the formula 12-12-17-2) with the soil.

The tree should be set slightly higher than when it was growing in the container. Keep the bud union at least 6 to 8 inches above the soil level (Picture 5 & 6). Now start filling around the ball pressing the soil down to remove air pockets. If water is on hand, water as you add soil until near the top of the hole (Picture 7). Finish filling the hole and pressing to firm the soil around the tree. A water basin is now formed around the tree which should remain for 4 to 6 months after planting (Picture 8). This facilitates irrigation and ensures the penetration of the water to the root zone in the quantity required. Since the soil and the tree are likely to settle slightly, the soil line should be settled one inch higher. Be sure that soil is not mounded around the base of the tree (Picture 9).

CARE OF THE YOUNG TREE

Weeding: The drip area (area around the tree where root system extends) should be kept clear from weeds and grass. Normally, this operation is done by hand using a hoe or other cultivation equipment. All cultivation should be shallow so as to not to damage the young root system. Even when some herbicides are available, they require extreme care and it is preferable not to use them on young trees.

Watering: Until well established young fruit trees demand a relatively small quantity of water but should watered about two or three times a week unless it rains. The water basin should be filled slowly to supply sufficient but not excessive moisture.



PICTURE 4: Only the plant in the center shows the proper balance between the root system and the foliar area. The plants on left and right sides need to be balanced by pruning either part of the twigs or part of the roots.



PICTURE 5: When planting, the bud union should never be covered by soil, otherwise the tolerance of the stock to given soil and disease problems may be reduced or totally nullified.



PICTURE 6: The heavier the soil, the higher the distance that the bud union should be from the soil level. This distance should never be less than 15 cm. (6 inches).

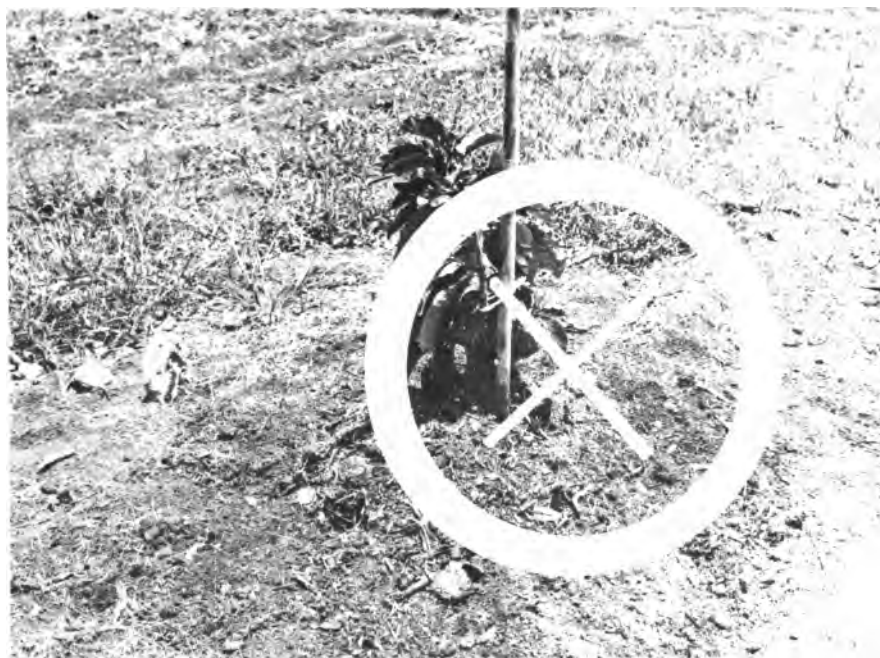


PICTURE 7: While planting, eliminate air pockets by pressing the soil around the root ball with a stick as you add soil and water to the hole (be careful not to jab the root ball). This practice will increase the chance of survival and promote a rapid positive response of the tree to its new environment.



PICTURE 8: A water basin should be constructed around the tree to facilitate irrigation and other cultural works.

PICTURE 9: When constructing the water basin do not mound the soil around the trunk of the tree.



TEMPORARY WINDBREAKS

In some areas, the wind speed is such that the leaves of the young tree will be "burnt" if not protected from the wind intensity.

Permanent windbreaks usually are not enough to provide the necessary protection, or they may have not grown to the necessary height. In such cases temporary windbreaks can be supplied to the young trees. One very common system is to build individual windbreaks using two or three poles and a piece of a polypropylene bag (e.g. fertilizer bag) which is placed in front of each tree and against the wind direction (Picture 10). Another system is to build a temporary wall every three or four rows with saran net against the wind direction.

The planting of several lines of tall annual crops such as sorghum, corn, pigeon peas, etc., near the line of the fruit trees is useful when the wind speed is moderate. The protection of young trees from high speed winds is extremely important especially in the early stage after transplanting.

PRUNING

Promptly remove sprouts and suckers emerging below the scaffold or framework limbs. Also, remove dead wood resulting from insects, diseases, or any other cause, with the use of sharp, clean pruning shears. Move dead wood well away from the young trees so as to avoid contamination and the development of pathogen on healthy tissues (Picture 11).

FERTILIZATION

Delay the first application of fertilizer until the newly planted tree shows visible signs of growth. This usually occurs from a month to a month- and- a- half after planting. The fertilization program for the first two to five years of the fruit orchard should be designed to promote good growth. This will later support the heavy load arising from high productivity. The fertilization programme should be based on soil analysis, foliar analysis, research results in the area or the experience of a farmer in the area.

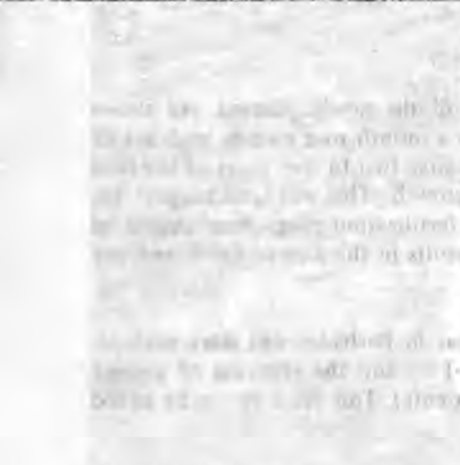
In general the programme for the first year in Barbados can start with bi-monthly applications of one half pound 12-12-17-2 and the spraying of a good foliar product rich in minor elements (micronutrients). This product can be added to normal spraying against pests and diseases.

PESTS AND DISEASES CONTROL

Normally, young trees do not require an intensive spray programme but you should check periodically for scales, aphids, whiteflies, mites and/or disease symptoms. For assistance consult the extension agent of the Ministry of Agriculture who can indicate the best products and dosage for use.

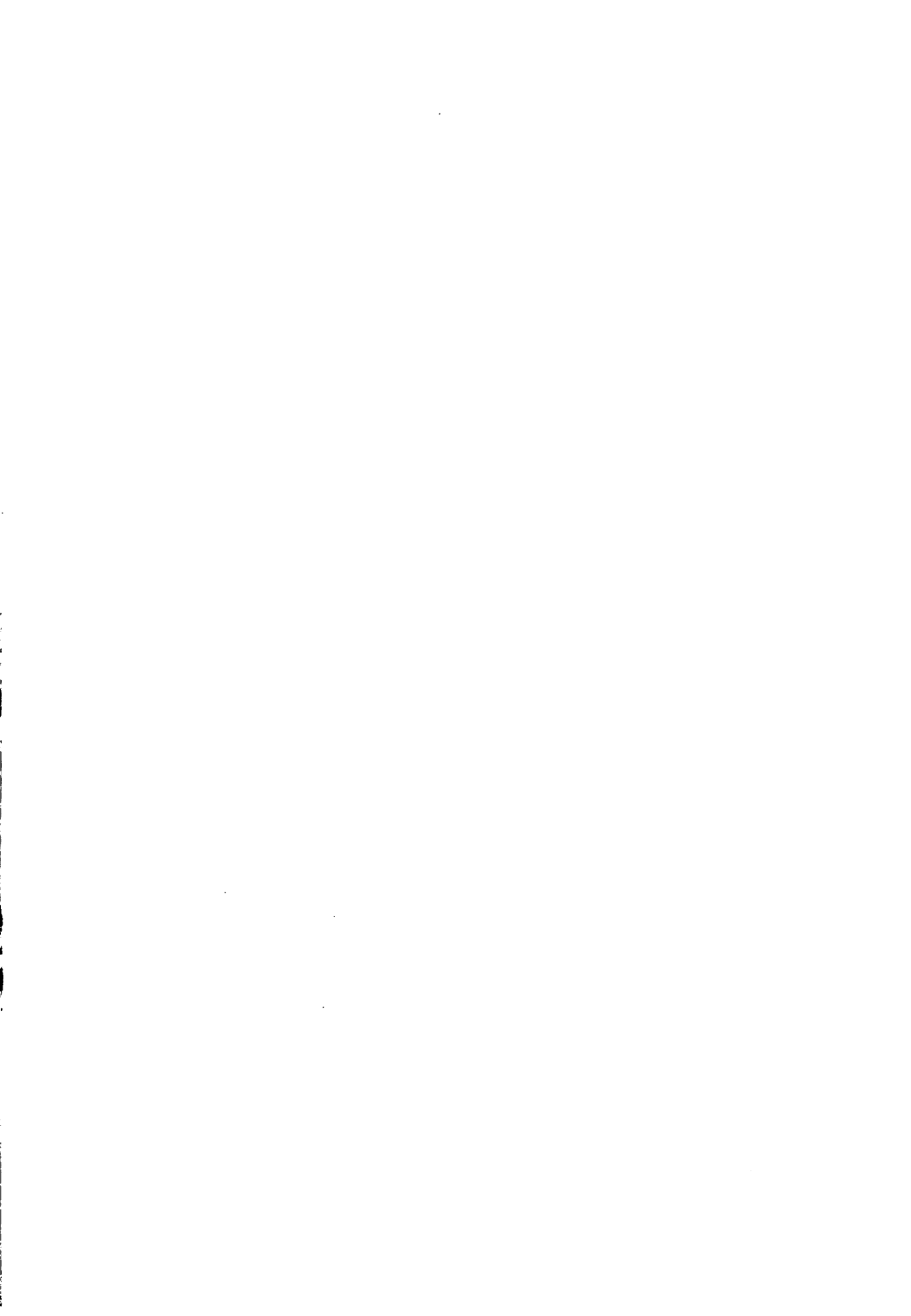


PICTURE 10: Individual protection against the wind could be provided by a piece of polypropylene bag, supported by poles.



PICTURE 11: The picture shows the common but harmful practices of leaving pruned dead wood at the base of the tree and mounding soil around the trunk.





FECHA DE DEVOLUCION

11 JUL 1994

IICA
PM-A2/BB-
86-001

Autor

Título Planting and early care of
your fruit trees

Fecha
Devolución

Nombre del solici

11 JUL 1994

