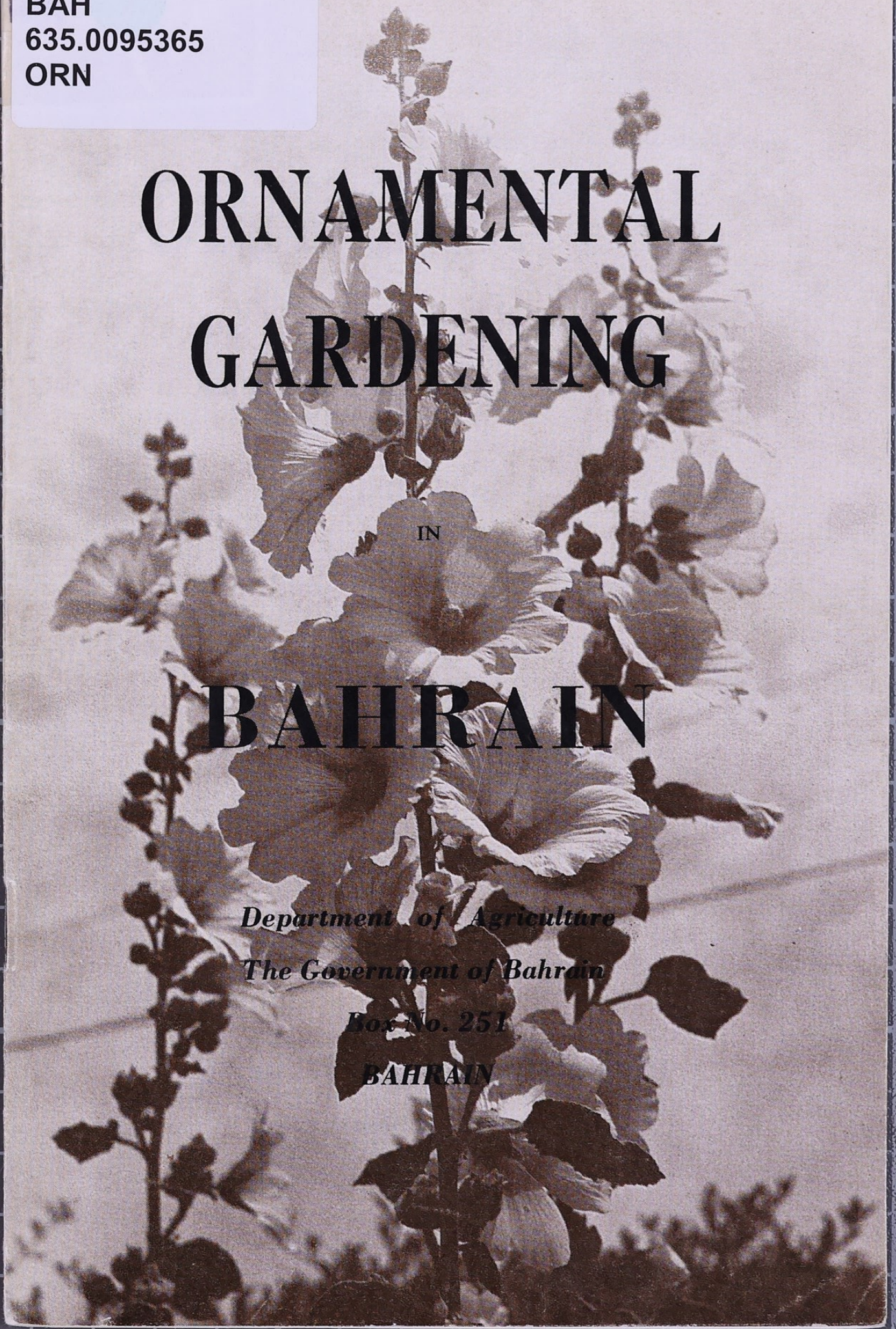
ORNAMENTAL GARDENING

IN

BAHRAIN



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BY

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ORNAMENTAL GARDENS IN BAHRAIN

Although climatic and other conditions prevailing in Bahrain can hardly be said to be favourable, interest in gardening has increased very appreciably in the past few years.

With a certain amount of perseverance and knowledge of local conditions it is possible to produce a colourful display of annual flowers in the Winter season and although Summer annuals are not exactly exotic a general display of flower and colour can be maintained throughout the year.

LAYOUT

Before laying out a garden careful consideration must be given to the area and a plan should be drawn up to make the best use of existing features such as houses, outbuildings and trees. Other features such as lawns, flowerbeds and shrubberies should be superimposed and developed to obtain the maximum effect.

As trees are normally one of the permanent features in a garden their position is very important as otherwise balance and proportion may be adverseley affected.

Shrubs are not only ornamental, but provide a background and can be placed to give a measure of privacy and should under no circumstances be planted indiscriminately as they are likely to detract rather than improve the look of the garden.

Flowerbeds in Bahrain are usually planted close to a house, along walks or in front of shrubberies where they obtain a certain amount of protection and show-up to the best advantage.

One of the main factors to be taken into consideration when laying out a garden in Bahrain is the direction in which the garden faces. The strong cold North winds that are prevalent in Winter are apt to cause considerable damage and it is essential that gardens facing North should be protected by windbreaks, high walls or hedges as otherwise a whole season's work may be destroyed in one day.

THE SOIL

The soil in Bahrain like most desert areas is highly saline, low in fertility, deficient in Nitrogen content, with a Ph of 7.8 and the use of fertilizers and organic matter is essential if satisfactory results are to be obtained. In certain areas where there is an accumulation of marl in the

soil and surface panning is common the application of coarse sand and organic manure is very beneficial.

IRRIGATION

Irrigation water in Bahrain is also relatively saline and over-watering although it may keep soil moisture at an optimum also introduces many problems such as the accumulation of salt and waterlogging and the latter is probably responsible for the loss of more plants and shrubs than any other single factor, especially in areas with a high water table.

DRAINAGE

Due to the saline content of the soil and water, natural or artificial drainage is very essential in all irrigated areas and not only must the drainage system remove excess water, but also the rapid build up of salt in the soil. In low lying areas the damage to flowers and plants from a high water table is very noticeable and even a temporary rise may retard plant growth.

CROP TOLERENCE

Although it is not possible to lay down any hard and fast rules with regard to plant tolerence to saline conditions the saline tolerance table may serve as a rough guide for gardeners in Bahrain.

LAND PREPARATION

Land preparation and tillage are important factors in the production of flowers and the object is to bring the land into the best possible condition to facilitate the growth of plants.

After clearing the area and ascertaining that there are no hard pans and other obstacles the following procedure may be adopted.

(a) Beds should be dug over early in August and allowed to fallow for a month and if possible the soil should be turned once during this period.

(b) Beds should then be levelled off, given a heavy watering and should be left for approximately ten days. A certain amount of weed growth will probably appear and this can be eradicated by careful weeding.

(c) To obtain the best results the beds should be heavily manured. (See Fertilizers).

The combined fertilizer and farm yard manure should be thoroughly mixed and laid evenly on the surface of the prepared beds. The mixture should then be worked into the top soil and the beds should receive two to three heavy waterings over a period of six to eight days before the seeds are planted.

PLANTING SEEDS

The depth at which seeds should be planted varies considerably. Large seeds such as convolvulus, nastertiums, and sweetpeas can be covered to a depth of $\frac{1}{2}''$, smaller seeds such as asters, candytuft, dianthus, stocks etc. require a light covering of soil while small seeds such as antirrhinums, mesembryanthemums, and petunias only require a very light sprinkling of soil.

The practice of sowing seeds early in September often proves to be disappointing as germination is usually very poor and results are far from satisfactory. To obtain relatively good germination advantage must be taken of any drop in the temperature in October or early November. (See Provisional Planting Guide).

IRRIGATION OF SEED BEDS

After planting, the seed beds should be watered immediately and it is preferable to use a watering can with a very fine hose, or place the mouth of the hose in a cigarette tin or other receptacle sunk into the bed. As far as possible the flow should be regulated, so that small seeds are not washed away.

Seed beds should be watered regularly preferably in the late afternoon or evening and care should be taken to see that the beds do not dry out. In the event of rain, beds should be heavily watered to carry off the accumulation of salt which is thrown up on plants and is apt to cause saline burn. Beds should be shaded until such time as the seedlings are well above ground and have made secondary leaves.

TRANSPLANTING

Transplanting is very beneficial in Bahrain for most annual flowers and plants should be "set out" as quickly as possible so as to reduce shock to the minimum. After transplanting, plants must not suffer from a lack of moisture and if the day temperature is high, light shade should be provided. A moist or cloudy day is ideal for transplanting and if possible young seedlings should not be transplanted when a Shimal is blowing. (See Provisional Planting Guide).

TREES AND SHRUBS

Provided space is not too restricted trees and shrubs if they are correctly placed are very essential in any garden in Bahrain.

Although numerous varieties have now been established on the Island, losses after transplanting are still relatively high and this is due mainly to a lack of preparation, timing and knowledge of the technique of planting trees.

The preparation of the holes is very important and care should be taken to see that the holes are large and deep enough for the varieties that are to be grown. Shrubs usually require holes (2 ft × 2 ft.) while holes for trees should be (3 ft × 4 ft.). In rocky areas holes will have to be increased in size and depth and in some areas that have a high watertable it is necessary to tile the bottom of the holes so that the roots do not come in contact with the highly saline watertable. After the holes have been dug they should be filled with a mixture consisting of 2/3 sand and 1/3 well rotted farm yard manure, which should be well pressed down and heavily watered three times over a period of 6-8 days.

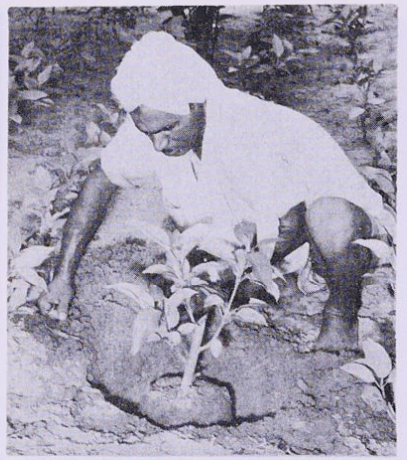
The timing with regard to the planting of trees and shrubs in Bahrain is also a very important factor and from experience it has been proved that the most favourable time for transplanting is from approximately the middle of September to early December and again from the middle of February to the end of June.

The method in which trees and shrubs are handled from the time they are dug to the time they are actually planted has an important bearing on their success or failure. The plants should not be subjected to high wind during transportation, the roots should not be allowed to dry out and planting must be carried out as soon as possible, preferably in the evening.

Plants, except for certain varieties are usually purchased "balled and wrapped" and unless they can be planted immediately they should be kept in an upright position in the shade and the balls should be kept moist.

When planting "balled and wrapped" trees, to avoid disturbing the ball of earth place the tree in the hole without removing the wrapping and when it is set at the correct depth, cut away as much of the wrapping as possible, shovel in soil and tamp down firmly making sure no air spaces have been left round the ball of earth. After-care is most important, trees should invariably be shaded preferably with palm fronds and in windy locations trees should be staked.

Young Ficus Bengalensis plants in a nursery bed.



A trench being dug round the plant prior to lifting

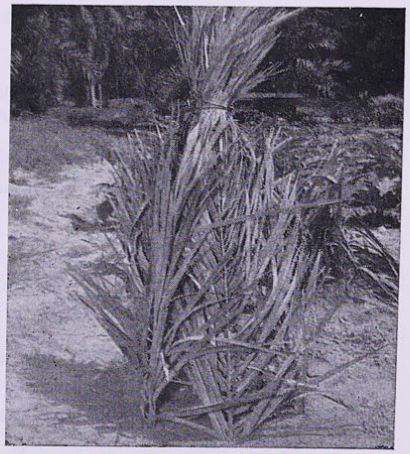
Plant wrapped ready for transportation.

The depth of the ball being measured, it is very important that the plant is not set too deep.

The hole is dug to the same depth as the height of the ball.

The tree in place, wrapping has been untied and pressed down to the bottom of the hole.

Soil has been filled in round the plant and is being tamped down firmly.



The plant is shaded with palm fronds.

Watering is extremely important in Bahrain and it must be remembered that irrigation water is highly saline. As the roots are well below the surface of the soil a light sprinkling is of little or no use and enough water should be given to penetrate the soil to a depth of about 1 foot. If newly planted trees or shrubs are watered once a day for the first week, once every two days for the second week and thereafter every third day they will have a good chance of survival. Spraying shrubs and trees with local irrigation water should be avoided as many varieties are quickly killed by the application of highly saline water.

LAWNS

A properly planned and well maintained lawn is essential in any garden lay out in the Arabian Gulf. Not only does a lawn enhance the beauty of trees, shrubs and flowerbeds, but it also forms a pleasant setting for a bungalow and is very restful to the eye.

PREPARATION OF A LAWN

After selecting the site it is necessary to remove surface grass and weeds to a depth of two to three inches.

The land can then be dug over to a uniform depth and care should be taken not to bring subsoil to the surface, this is very important in areas with a relatively high water table.

After coarse stones, roots and other obstacles have been removed the surface should be raked and levelled carefully using pegs and a spirit level.

Having levelled off the area an application of finely shredded farmyard manure should be laid evenly on the surface to a depth of one to two inches and worked into the top soil.

If farmyard manure is unobtainable peat can be substituted and applied at the rate of 10 tons per acre together with combined fertilizer, (10% N × 20% w.s. P_2O × 20% K_2o) at the rate of 150 lbs. per acre.

When no organic or inorganic fertilizers are available lawns can still be established in the light sandy soils in Bahrain, but it is pointed out that the establishment of a lawn under these conditions is a long drawn out process.

Unfortunately seeding of lawns in Bahrain is not really satisfactory as germination is usually poor and many imported varieties of grass tend to die off in the Summer. The normal system is to dibble in tufts of Cynodon

Dactylin grass at about 4 inches apart and the most suitable time for planting out the grass tufts is from March to the end of September.

Before dibbling is commenced the area should receive two to three heavy waterings and levels should be rechecked.

MAINTENANCE OF A LAWN

The upkeep and maintenance of a lawn is most important and it is impossible to keep a smooth expanse of grass unless the lawn is carefully tended.

After the tufts of grass have been dibbled in, the grass should be allowed to grow to a height of five to six inches before being cut with garden scissors, and the process should be repeated until such time as a firm green sward has been formed.

Once the sward is established the grass should be mowed with a mowing machine at brief intervals throughout the summer.

Frequent rolling is very beneficial, but a roller should never be used when the ground is either too dry or too wet.

Overwatering is one of the most common reasons of deterioation of lawns in Bahrain. To begin with, the irrigation water is saline and continuous watering not only tends to raise the watertable, but it also rots the grass near the surface of the soil and encourages attacks by worms, beetles etc.

After a lawn has been laid the area should be watered daily until such time as the sward is established and later watering should be reduced depending on the weather to two or three waterings a week.

When a lawn becomes impoverished and the grass begins to look tired a top dressing is very beneficial and although top dressings can be applied throughout the year the best time to apply a top dressing is in spring.

The following top dressings may serve as a guide to gardeners in Bahrain:

1. Composite fertilizer at the rate of 1 oz. per square yard.
2. Sulphate of Ammonia at the rate of $\frac{1}{4}$ oz. per square yard.

To ensure even distribution the artificial fertilizers should be mixed with an adequate quantity of fine washed sand, but care should be taken not to cover the grass completely.

The artificial fertilizers can also be dissolved in water at the rate of 1 oz per gallon and applied through a fine rose.

An application of finely shredded farm yard manure is also very effective provided it is applied evenly over the surface and does not cover the grass.

Before dressings are applied, lawns should be mowed reasonably closely and bare patches should be thoroughly raked.

Weed growth in Bahrain especially during the Summer is very rapid and large leaved weeds and coarse types of onion grass tend to spread very rapidly. As far as possible weeds should either be removed by hand or by the application of a selective weed killer.

ORGANIC AND INORGANIC FERTILIZERS

Although a certain amount of plant food is available in all soils, cultivation and cropping rapidly reduces plant food and to maintain the land in "good heart" it is necessary to replace shortages by the addition of organic and inorganic fertilizers.

The essential elements or plant foods are normally divided into two groups.

(a) **Major Elements**	**Action**
Nitrogen (N)	Stimulates leaf and plant growth.
Phosphate (P_2O_5)	Improves rooting and accelerates maturity.
Potash (K_2O)	Improves colour and flavour and increases disease resistance.
(b) Minor Elements	
Magnesium Manganese Iron Molybdenum Sulphur Boron Zinc Copper	Very small quantities are required for plant growth, for signs of shortages see Chlorosis.

Organic fertilizers which consist of animal or vegetable matter are slow acting and provide the plant with food over a long period and are generally used as base or initial dressings.

Inorganic or artificial fertilizers which are manufactured are normally quick acting and supply plant food almost at once and are usually used as top dressings.

Organic and inorganic fertilizers are also used together to supply a crop with readily available fertilizer and to also provide fertilizer over a period of time.

For many years controversy raged as to the relative merits or demerits of organic and inorganic fertilizers.

Many gardeners claimed that inorganic fertilizers tended to spoil the soil texture and that vegetables manured with artificial fertilizers were poor in quality and relatively tasteless. However, results over many years have proved that there is no definite evidence to support these claims and that as organic and inorganic fertilizers serve different purposes they are both equally important for plant growth.

COMPOUND FERTILIZERS

Compound fertilizers contain the Major Elements, Nitrogen, Phosphates and Potash and are balanced to meet the requirements of plants under various conditions. The numbers associated with combined mixtures such as (10 N × 20 P_2O_5 × 20 K_2O), represent the percentage of Nitrogen, Phosphates and Potash contained in the mixture.

LIQUID MANURE

Liquid manure made from cow, poultry or horse manure is one of the most natural and effective methods of top dressing plants as the plant food is carried down to the roots and is readily available.

Liquid manure is easily produced by suspending a small sack of manure in a 45 gallon drum of water for a week. The resultant liquid can then be drawn off, diluted 1:3 and applied round the plants through a rose.

Liquid manure can also be produced by diluting artificial fertilizers with water and one of the most common boosters is produced by dissolving one ounce of Sulphate of Ammonia in a gallon of water. When applying

liquid manure care should always be taken to see that the liquid does not come into direct contact with plants.

FOLIAR SPRAYS

Until recently, gardeners have always considered that the only way to feed a plant was by supplying fertilizers that could be readily assimilated through the root system. Artificial feeding through the leaves of a plant was in the past limited to Nitrogenous "boosters" and the correction of trace element deficiency.

With the introduction of various seaweed foliar sprays it has been found that excellent results can be achieved by feeding plants through their leaves and it is also claimed that this type of manuring is very economical as there is no wastage of the fertilizer by leaching.

HUMUS

Humus which may be said to be a stage in the decomposition of organic matter is of vital importance in all soils as it improves aeration, of bacteria which change complex chemicals into easily assimilated plant foods. In desert areas which are apt to decline rapidly it is absolutely essential to maintain the organic content of the soil and the addition of humus makers such as farmyard manure, hop manure and compost help to improve the soil.

COMPOST

In the light sandy soils that are common in Bahrain the addition of good humus makers such as well rotted compost should prove to be very beneficial especially to "home gardeners." There are many systems and methods of making compost heaps, but the undermentioned system is simple and as the heap rots down quickly there is little or no likelihood of unpleasant odours emanating from the decaying material.

Save all lawn clippings, leaves of trees and vegetables and any other refuse that will rot down quickly.

Dig a shallow pit say (6′ × 4′ × 2′) in a disused part of the garden and fill in a layer of the waste material to a depth of 6″ — 9″. If "accelerators" are available spread a thin layer of the powder over the layer of refuse and repeat the process till the heap reaches a height of 3′ —4′.

Cover the top and sides of the heap with a layer of earth. To speed-up the process the heap can be watered occasionally, but it is pointed out that overwatering tends to leach out the nitrogen from the decaying material.

If accelerators are not available good results can be obtained by covering each layer with a mixture consisting of Lime, Superphosphate and Sulphate of amonia.

The undermentioned fertilizers applications may serve as a guide to gardeners.

FLOWERS

(a) **Basic Application per square yard**

1. Farmyard Manure ..... 6 lbs.
   +
   Combined Fertilizer (10% N × 20% w.s.P_2O_5 × 20% K_2O) 1 oz.
2. Farmyard Manure ..... 5 lbs.
   +
   Combined Fertilizer (12% N × 10% w.s.P_2O_5 × 18% K_2O) 1½ oz.
3. Peat ..... 6—8 lbs.
   +
   Combined Fertilizers (10% N × 20% w.s.P_2O_5 × 20% K_2O) 2 ozs.
4. Compost ..... 6 lbs.
   +
   Combined Fertilizer (12% N × 10% w.s.P_2O_5 × 18% K_2O) 1½ oz.

NOTE The Combined fertilizer and farmyard manure etc., should be thoroughly mixed and laid evenly on the surface of the prepared beds. The mixture should then be worked into the top soil and the beds should receive two to three heavy waterings over a period of six to eight days before planting.

(b) **Top dressings per square yard.**

1. Superphosphate (18%) ..... 2 ozs.
   Combined Fertilizer (10% N × 20% w.s.P_2O_5 × 20% K_2O) 1½ oz.
   NOTE Fork-in round plants.

LAWNS

(a) **Basic Application per square yard**

1. Farmyard Manure ..... 5 lbs.
   +
   Combined Fertilizer (12% N × 10% w.s.P_2O_5 × 18% K_2O) 1½ oz.
2. Peat .....6—8 lbs.
   +
   Combined Fertilizer (10% N × 20% w.s.P_2O_5 × 20% K_2O) 2 oz.

(b) **Top Dressings per square yard**

1. Combined Fertilizer (10% N × 20% w.s.P_2O_5 × 20% K_2O) 1 oz.
2. Sulphate of Ammonia ..... ¾ oz.
3. Farmyard Manure ..... 2 lbs.

NOTE 1 & 2 can be diluted with water and applied through a fine rose or mixed with an adequate quantity of fine sand.

CHLOROSIS

Under the highly saline conditions prevailing in Bahrain, chlorosis, which is the yellowing of the green portions of a plant is very prevalent in areas under irrigation. Chlorosis may be due to disease organisms, the unavailability of plant nutrients and minor elements, overwatering or water-logged conditions.

IRON CHLOROSIS

The most common form of chlorosis in Bahrain is due to the unavailability of iron. Although there may be sufficient quantities of iron in the soil the highly saline conditions together with a high pH precludes the intake of iron through the root hairs of the plant. Iron is very essential for the formation of chlorophyll, the substance responsible for the green colour in plants and any deficiency of iron is easily recognised by the fact that the areas of the leaves between the veins turn yellow while the veins themselves remain green. As the disease progresses the entire leaf turns yellow or white and later falls off. Plants suffering from iron chlorosis are usually weak and spindly and fail to produce good blooms.

Other deficiency diseases induced by the unavailability of Zinc, Manganese, Copper and other minor elements are rare in Bahrain and iron deficiency is responsible for most of the chlorosis met with on the Island.

Deficiency Disease	SYMPTOMS	Correction of Disease
1. Iron Deficiency	As above	Soil application or spray Sequestrine 330 or 138 Fe Iron Chelate.
2. Zinc Deficiency	Twigs die back and leaves have mottled effect, edges of the leaves are often irregular.	Soil application or spray Sequestrine Na_2Zn Zinc Chelate.
3. Manganese Deficiency	Very similar to Iron Chlorosis except for the fact that small necrotic spots appear and eventually fall out leaving holes in the leaves.	Soil application or spray Sequestrine Na_2 Mn Manganese Chelate.
4. Copper Deficiency	Leaves appear to be malformed, tip burn present.	Spray with Sequestrine Na_2Cu Copper Chelate.

PESTS AND DISEASES

Being an Island, Bahrain should be and has in the past been very free of pests and diseases.

With the introduction of increasing quantities of seed and the importation of plants, fresh fruit and vegetables the incidence of pests and diseases has become very noticeable and the elimination of injurious insects, virus and fungus diseases is gradually becoming a major problem for gardeners.

PESTS

Pests are normally divided into two categories and are classified as "chewing" or "sucking" insects. The former group is controlled by the even application of stomach poisons to plants while the latter group is eradicated by the application of contact insecticides.

Chewing and sucking insects may also be further subdivided into open, undercover and nocturnal feeders and the two latter types are more difficult to eradicate than open feeders.

Although there are numerous types of injurious insects there are also many insects that are beneficial such as the praying mantis, ladybugs, and many kinds of beetles, flies and wasps that prey on caterpillars and grubs.

With the introduction of multi-purpose insecticides it is not necessary for home gardeners to have an expert knowledge of pests and diseases and provided gardeners are familiar with the type of plants they are growing and can recognise any abnormalities serious damage can usually be avoided if control measures are carried out in the early stages of an attack.

DISEASES

Many plant diseases are prevalent in Bahrain and they are caused by fungi, bacteria, unfavourable conditions and viruses.

Insects also play a large part in helping to spread disease and provided they are controlled it is often possible to check the spread of disease.

Crop rotation or the change of a crop from year to year helps considerably in reducing the incidence of certain diseases that persist in the ground.

Roguing or the removal of diseased plants often prevents the spread of disease if it is carried out when the first symptoms are recognized.

In certain instances the application of a suitable quick acting fertilizer helps plants to throw off a disease.

The removal of Host plants and weeds is also very beneficial as many weeds act as hosts for virus diseases.

Some diseases are seed borne and the use of certified disease free seed prevents the development of disease.

In many areas where certain diseases are known to be prevalent the use of disease resistant seed is successful, but many disease resistant types of plants are inferior to non-resistant types.

The most generally used form of control is by the application of chemicals as dusts and sprays and if plants are attacked by pests or diseases that are not easily recognized help and advice should be sought from the nearest Agricultural Station.

Fungicides and insecticides are being produced in increasing numbers and although it is not possible to list all the chemicals available the pest and disease control table may be of some help to gardeners.

PESTS, DISEASES AND CONTROL MEASURES

General Pests	Symptoms	Control
Ants	No direct injury to plants, steal seeds, loosen earth around roots causing wilt, carry greenfly from plant to plant.	(a) Spray Agrocide 26 round entrance holes. (b) Soil application of Agrocide 3 at 112 lbs per acre. (c) Dust 5% Chlordane Dust at entrance holes. (d) Apply Alderstan E.C. 30 before cultivating beds at 6 pints : 10 gallons water.
Chafer Grubs	Feed on the roots of plants which usually wilt and die.	(a) Soil application of Agrocide 3 at 112 lbs. per acre. (b) Apply Alderstan E.C. 30 before cultivating beds at 6 pints : 10 gallons water.
Cutworms	Usually attack plants at ground level causing plants to wilt and topple over.	(a) Soil application of Agrocide 3 at 112 lbs per acre. (b) Spray Alderstan E.C. 30 at 4 pints to 25 — 100 gallons of water. (c) Apply 5% Chlordane dust.
Grass hoppers	Often attack in very large numbers and decimate young plants.	(a) Bait with Agrocide 26 4 ozs. to 100 lbs. bran. (b) Bait with agrocide 40 dust 2½ lbs. to 100 lbs. bran.

Leaf-eating. Beetles	Ruin the appearance of the plant by eating holes in the leaves.	(a) Spray agrocide 26 (½ lbs. to 100 gallons water). (b) Spray with Gammalin 20 (½ pint to 100 gallons water).
Mole Crickets	Attack plants at or below ground level and feed on roots.	As for grass hoppers.
Slugs and Snails	Nocturnal feeders devour seedlings, roots, stems and leaves of plants	Use a metaldehyde bait mixture which attracts the pests and kills them.
Leaf-eating. Caterpillars	Holes in leaves	(a) Spray with Katakilla (4 lbs. to 100 gallons water). (b) Spray with liquid Derris Abol. (3 fluid ozs. 1 gallon water). (c) Spray with Didimac 25 (3 pints to 100 gallons water).
Lawn Caterpillars.	Eat roots and runners	(a) Soil application of Agrocide 3 dust 112 lbs. per acre. (b) Spray chlordane 50 wettable powder 1 teaspoon to 1 gallon of water.

SPECIFIC PESTS AND DISEASES

PLANTS ATTACKED	PESTS OR DISEASE	SYMPTOMS	CONTROL
Ageratum	Greenfly	Buds shoots and leaves attacked and often deformed, greenfly usually seen on the underside of the leaves.	(a) Spray with Katakilla (4 lbs. to 100 gallons water). (b) Spray with liquid Derris Abol. (3 fluid ozs. to 1 gallon water). (c) Spray with Malathion E.C.50 (1½ pints to 100 gallons water). (d) Spray with Nicotine spray (1 oz to 2 pints water).
Aster	Virescens	Deformed green flowers	Spray as above to kill off insects that transmit virus.
Antirrhinum	Rust	Reddish brown spots on leaves and stem.	Plant resistant varieties, and spray with a Zineb preparation, not seed borne.
Cornflower	Greenfly	As for Ageratum	As for Ageratum
Hollyhock	Red Spider	Leaves turn yellow and appear to dry.	(a) Spray with Malathion E.C.50 (1½ pints to 100 gallons water). (b) Spray with Katakilla (4 lbs. to 100 gallons water).

Stock	Greenfly	As for Ageratum	As for Ageratum
	Mildew	Powdery white or gray patches on upper surface of leaves	(a) Spray with Karathane preparation (b) Spray with Tulisan (3 lbs. to 100 gallons water). (c) Spray with Sprersul (2 lbs. to 100 gallons water).
Rose	Greenfly	Buds, shoots and leaves attacked	Spray Malathion E.C.50 (1½ pints to 100 gallons water).
	Red Spider	Mottled appearance on leaves	As for Greenfly.
	Black Spot	Yellow spots on leaf that gradually grow larger eventually black spots appear in the centre of the yellow patches.	(a) Spray with Hexyl plus, (1 fluid oz. to 1½ gallons water). (b) Spray with Tulisan (3 lbs. to 100 gallons water).
	Mildew	Powdery white or grey patches on leaves and young wood, very serious disease on roses.	(a) Spray with Karathane. (b) Spray with Tulisan (3 lbs. to 100 gallons water). (c) Spray with Spersul (2 lbs. to 100 gallons water).

SALT TOLERANCE TABLE

FAIRLY HIGH TOLERANCE	MODERATE	POOR TOLERANCE
Ageratum	Antirrhinum	Aquilegia
Alysum	Arctotis	Brachycome
Amaranthus	Blue Lace Flower	Clianthus
Asparagus Plumosa N	Canary Creeper	Phlox Drummondi
Asparagus Sprengeri	Candytuft	Salpiglossis
Aster	Cleome	Sweet William
Balsam	Cosmos	Sweet Pea
Cactus	Dolichos	
Calendula	Mesembryanthemum	
Calliopsis	Salvia	
Canna	Torenia Fournieri	
Capsicum Ornamental		
Carnation		
Celosia		
Chrysanthemum (Summer)		
Coleus		
Convolvulus		
Cornflower		
Dahlia		
Dianthus		
Four O'Clock		
Gaillardia		
Gloriosa Daisy		
Globe Amaranth		
Helichrysum		
Hollyhock		
Ipomoea		
Kochia		
Larkspur		
Linum		
Marigold (Var)		
Mimosa Pudica		
Mina Lobata		
Nastertium		
Nicotiana		
Petunia		
Periwinkle		
Statice		
Stock		
Sunflower		
Thunbergia		
Tithonia		
Verbena		
Zinnia		

PROVISIONAL PLANTING GUIDE

SEEDS THAT CAN BE PLANTED THROUGHOUT THE YEAR	SEEDS THAT CAN BE PLANTED IN SPRING (FEB.—APRIL)	SEEDS THAT CAN BE PLANTED IN AUTUMN (OCT.—NOV.)
Cannas	Asparagus Plumosa	Ageratum
Periwinkle	Asparagus Sprengeri	Alyssum
Zinnia	Cactus	Amaranthus
	Canary Creeper	Antirrhinum
	Capsicum Ornamental	Aquilegia
	Celosia	Arctotis
	Cleome	Asparagus Plumosa
	Coleus	Asparagus Sprengeri
	Convolvulus	Aster
	Dolichos	Balsam
	Four O'Clock	Blue Lace Flower
	Gaillardia	Cactus
	Gloriosa Daisy	Calendult
	Globe Amarnth	Calliopsis
	Kochia	Candytuft
	Mimosa Pudica	Capsicum Ornamental
	Mina Lobata	Carnation
	Petunia	Celosia
	Torenia Fournieri	Chrysanthemum Summer
		Cleome
		Clianthus
		Coleus
		Convolvulus
		Cornflower
		Cosmos
		Dahlia
		Dianthus
		Gaillardia
		Gloriosa Daisy
		Helichrysum
		Hollyhock
		Ipomoea
		Larkspur
		* Linaria
		* Linum

* Not suitable for transplanting.

SEEDS THAT CAN BE PLANTED THROUGHOUT THE YEAR	SEEDS THAT CAN BE PLANTED IN SPRING (FEB.—APRIL)	SEEDS THAT CAN BE PLANTED IN AUTUMN (OCT.—NOV.)
		Marigold (Var)
		Mesembryanthemum
		Mimosa Pudica
		Nastertium
		Nicotiana
		Petunia
		Phlox Drummondi
		Salpiglossis
		Salvia
		Statice
		Stock
		Sunflower
		Sweet Sultan
		Sweet Pea
		Thunbergia
		Titonia
		Verbana