CROP PLANNING

Crop planning considers what, when, where and which plants to grow in relation to their requirements for space, sunshine, water, maturation, season of planting and tolerance for each other. It involves a cropping pattern in which different categories of vegetables are raised, followed by a system of crop rotation to keep the cycle going and to provide a suitable, healthy environment for plants to grow. For a family food garden, crop planning means raising vegetables that will provide for the nutritional needs of the household members all year round. Crop plans must include varieties of crops. Such “heirloom” varieties must be preserved for future generations. Backyard gardeners are the best curators.

WHAT TO PLANT FOR FAMILY NUTRITION

Plant vegetable crops that are nutritious and easy to grow, indigenous varieties that are productive and tolerant to common insect pests and diseases. Raise more vegetables that will allow you to harvest over a long range of time as compared to vegetables that have to be harvested all at one time. Mix short and long maturing-crops to ensure a well-distributed supply of nutritious vegetables. Place a special emphasis on crops which have more than one edible part, e.g., roots and leaves, flowers and leaves, etc.

Your family food garden should include vegetables that are rich in protein, carbohydrates, minerals and vitamins.

Carbohydrates/energy Source

- Cassava, sweet potato. Taro (gabi), rice bean (tapilan), dried hyacinth beans (batao, harabilla), dried lima beans (patani), dried pigeon pea (kadyos), dried stalk beans (habas) and mung bean.

Vitamin A Sources

- Amaranth (kulitis), hot pepper leaves, horse raddish leaves (malunggay), bittergourd (ampalaya) leaves, spinach, kangkong, sweet potato leaves and squash.

High Protein Sources

- Winged bean, lima bean, rice bean, hyacinth bean, pigeon peas, string beans (sitao) and jack beans

High Vitamin C Sources

- Horseradish, bittergourd leaves, amaranth leaves, mustard, petchay, bittergourd fruit, kangkong and spinach.

Iron-Rich Crops

- Amaranth leaves, pigeon peas, lima beans, sweet potato leaves, winged bean, mungo, petchay, spinach, kangkong and pepper leaves.
FOR A FAVORABLE PLANT ENVIRONMENT

Plant four categories of vegetables in your bed: leafy, root, legume and fruit. Crop rotation requires that each category or type be planted in a different sub-division of the bed every season. Different plants have varying root depths and so extract nutrients and moisture from different regions of the soil profile.

Crop planning can provide a family food and other essentials during staple crop shortages, plus a variety of quality nutrients to lessen or eliminate deficiencies in the diet.

TRELLISING

A trellis is a structural support for climbing plants. Trellising maximizes the use of limited space by allowing several crops, like legumes and gourds, to be grown on a single trellis.
- permits the growing of shade-tolerant crops under the trellis.
- makes crop production feasible over canals and water-logged areas.
- protects plants from stray animals.

TRELLISING

Trees and tall crops, like papaya and banana, can also serve as trellis and “live fences.”

MULCHING

During the initial stage of crop growth, the space between the plants is covered with dried rice straw or grasses to conserve moisture. Later on, this is removed if not decomposed, since the plants themselves serve as “living mulch”; when their leaves cover the soil surface. During the hot months, the mulch should always be maintained.

In the rainy season, mulch should not be used around young seedlings. Plants should be at least six weeks old before mulch is used as mulch can promote the growth of fungi, causing seedlings to rot.
Growing and Collecting Seeds

By continuously raising vegetables from season to season, you also preserve valuable seed varieties handed down from generation to generation. Choosing good quality seeds from selected vegetables and then drying and storing them properly keep the seeds alive and make them viable for two or more years to come.

Even while they are stored, seeds are still alive. However, all seeds eventually die if they are not planted.

GROW YOUR OWN VEGETABLE SEEDS

- You can produce high quality seeds at low cost.
- One plant can produce enough seeds for your garden.
- When the seeds that you want are not available in the market, you can still continue gardening if you raise your own seeds rather than buy them.
- You help preserve traditional indigenous varieties of vegetables for the future generation.

CHOOSING GOOD PLANTS FOR SEEDS

- Vigorous
- Less prone to diseases
- Early-bearing
- Good size
- Long storage life
- Produces large, healthy fruits
- Good to eat
- Less insect attack
- Good yield
- Late to seed
- Good color

HOW PLANTS PRODUCE SEEDS

Plants have to pollinate in order to produce seeds. The pollen, the fertilizing powder in the anther of flowers, is to be conveyed to the stigma or pistil of the plant. Plants may either be self-pollinated or cross-pollinated. Self-pollination occurs when the pollen of a flower fertilizes the ovary of the same flower or another flower on the same plant. Cross-pollination occurs when insects or wind transfer pollen from the flower of one plant to the flower of another. Cross-pollinated plants have incomplete flowers with only male or female parts but not both, while self-pollinated plants have complete flowers containing both male and female parts. Self-pollinated vegetables include beans, peas, eggplant, lettuce, okra. Cross-pollinated vegetables include cucumber, spinach, amaranth.

- Sometimes, self-pollinated vegetables can be cross pollinated by a different variety of the same vegetable grown close by. So, when you are saving seeds, do not grow two varieties of the same vegetable together.
- Cross pollinated vegetables must be well-separated to prevent variation.
- If some of the plants are not good, remove the plants before flowering so that they do not cross-pollinate with good plants. If you don’t remove them, you will not produce a good type of seed.
Fermentation Process:
Dump pulp and seeds into a jar with water. Ferment for two to three days. Stir occasionally. The pulp will rise to the top. The good seeds will sink to the bottom. Pour off pulp, wash seeds carefully and dry on screen paper.

Self-Pollinated Crops

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>When to Harvest</th>
<th>Cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beans and peas</td>
<td>Pull up plants when pods turn brown and most leaves have fallen. Hang to dry in airy place.</td>
<td>Shell beans or peas when very dry. Store in ventilated container in a cool, dry place.</td>
</tr>
<tr>
<td>Eggplants</td>
<td>Pick when very ripe, about to fall off the stalk.</td>
<td>Wash seeds clean from the pulp and dry over. Use fermentation process.</td>
</tr>
<tr>
<td>Okra</td>
<td>Remove stalks when pods are dry and almost splitting.</td>
<td>Remove seeds from pods. Dry further before storing.</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>Pick fruits when fully ripe.</td>
<td>Use fermentation process.</td>
</tr>
</tbody>
</table>

Cross-Pollinated Crops

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>When to Harvest</th>
<th>Cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cucumbers</td>
<td>Pick when big and golden yellow.</td>
<td>Wash seeds clean from pulp. Dry on screen or paper, stirring occasionally, or use fermentation process.</td>
</tr>
<tr>
<td>Onions</td>
<td>When black seeds on flower heads become exposed, cut stalks. Dry heads on screen or paper.</td>
<td>Rub seeds from heads when dry (will come off easily). Remove chaff.</td>
</tr>
<tr>
<td>Squash</td>
<td>Pick at edible stage.</td>
<td>Remove seeds from pulp; wash carefully and dry. Spread out the seeds, stirring occasionally.</td>
</tr>
<tr>
<td>Mustard, Chinese Cabbage</td>
<td>Cut flower stalks when seeds pods are brittle.</td>
<td>Remove seeds from pods by hand. Dry further before storing.</td>
</tr>
</tbody>
</table>

SEED COLLECTION
- Select the plants to be used for seeds. Mark the plant so that they are not harvested by accident.
- Harvest the plant at the right time. Plants harvested early give thin seeds that germinate poorly and deteriorate quickly in storage. Fruits and pods should be well-ripened when picked but not so old that they rot or blow away.
- Collect seeds during the dry season, especially on a sunny day after the dew has evaporated. This is to avoid many disease problems.
- Test the seeds long enough before planting time to make sure they are viable.
- Seeds should be labeled soon after collecting to avoid mixing them.

HARVESTING AND CLEANING VEGETABLE SEEDS
(From: Seed and Nursery Directory by Cary Fowler and Elaine Chiosso, The Rural Advancement Fund, North Carolina, USA, 1983)

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COMPANION CROPS

Planting two or more crops that have mutual beneficial effect on each other is called companion planting. Certain plants like each other! Others dislike each other and adversely affect production.

SHADE/MULTI-STORIED PLANT CANOPY

Plant shade-tolerant vegetables, like gabi, ginger, pepper, mustard and sweet potato underneath tall crops, like cassava, kadios and vines on trellis, like gourd, squash and winged beans. This will form a multi-storied plant canopy, which can efficiently use sunshine. Various crops can be grown on limited space with little competition. Weed growth is also controlled through shading by the upper canopy level and by trailing vine vegetables. Since weed growth is also controlled, your vegetable crops get better opportunity for growth.

If the bed is located in an East-West direction, the tall crops should be planted only at either end of the bed.

MATURATION

Grow short-duration vegetables, like petchay and mustard, between slow-growing, long duration crops, like tomato, sweet pepper, et. Long duration vine vegetables, like cucumber, upo, patola, winged bean, squash, sweet potato and alugbati could be rooted at one side of the bed and allowed to creep on the ground and/or allowed to trail on a trellis constructed beside the bed.

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Likes (companion)</th>
<th>Dislikes (enemies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beets</td>
<td>Onions, garlic</td>
<td>Pole beans</td>
</tr>
<tr>
<td>Snap bean</td>
<td>corn</td>
<td>Onion, garlic</td>
</tr>
<tr>
<td>Bush sitao</td>
<td>Corn, mungo, sorghum</td>
<td>Sweet potato</td>
</tr>
<tr>
<td>Cabbage family (cabbage, cauliflower, broccoli)</td>
<td>Garlic, onion</td>
<td>Pole beans</td>
</tr>
<tr>
<td>Garlic</td>
<td>carrots</td>
<td>-</td>
</tr>
<tr>
<td>Corn</td>
<td>Beans, squash, potao, cucumber, beans, corn</td>
<td>Potato</td>
</tr>
<tr>
<td>Cucumber</td>
<td>Radish</td>
<td>-</td>
</tr>
<tr>
<td>Tomato</td>
<td>Onion, lettuce</td>
<td>Potato</td>
</tr>
<tr>
<td>Eggplant</td>
<td>Pepper, beans, lettuce</td>
<td>-</td>
</tr>
<tr>
<td>Onion</td>
<td>Lettuce</td>
<td>-</td>
</tr>
<tr>
<td>Mungo</td>
<td>Corn, sorghum</td>
<td>-</td>
</tr>
<tr>
<td>Sweet potato</td>
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<td>-</td>
</tr>
<tr>
<td>Radish</td>
<td>Bush sitao, beans, cucumber</td>
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**SPACING**

Space plants closely, seeing to it that each plant has enough sunshine and space to grow. Plants are correctly spaced when the leaves of the fully-grown plants barely overlap with the adjacent ones. Plant in a triangular fashion. The seeds or seedlings are planted at each end of an imaginary triangle, with the sides of the triangle being equal to the recommended spacing. This practice allows more plants to be grown within a small area than the usual method of square or row planting. It also prevents the growth of weeds and moisture evaporation as the plant canopy serves as “living mulch.”

**REPELLANTS**

Every bed must have a few spice plants and medical herbs with strong odor to repel insects from the garden. Examples: mint, onions, oregano, basil, garlic, etc. In addition, each bed should have 6 – 8 marigold plants. The roots of marigolds secrete a chemical that kill soil nematodes. The strong odor of marigolds also repel insects.
Pest control
In Your
Garden

INSECTS AND THEIR HABITS

METAMORPHOSIS

Insects undergo a metamorphic process, transforming from a tiny egg to a larva, then to pupa and finally into an adult form as bugs, moths and butterflies.

As its larval form, an insect is commonly referred to as worm or caterpillar, larvae are voracious eaters, existing only to eat. Pest control is usually directed at the larval stage because larvae are usually soft-skinned, slow, vulnerable, visible parasites and predators.

The larva soon develops into a pupa, an inactive form living on stored food acquired during its larval stage. Pupa are usually tucked out of sight: in plant crevices, plant refuse and in the soil. An age-old way of disturbing and destroying the pupae is by cultivating the soil. The pupa transform into an adult form to mate, reproduce and find a good place to stash its eggs.

If a particular insect does damage in one metamorphic stage, it may be beneficial in another. If it can not be captured or controlled in one stage, it may be subject to predators in another stage.

EATING HABITS

The eating habit of insects give a clue to its identity, metamorphic stage, as well as its control. Insects feed in two main ways: chewing and sucking

- CHEWING INSECTS bite or chew the leaves, systems, roots and fruits of plants. Examples: caterpillar, beetles, bugs, worms.

- SUCKING INSECTS suck the juices out of the plant, usually near the tender new growth. They usually too tiny and too numerous. Examples: aphids, thrips, flies and scale insects.

Some Common Insect Pests and Controlling Them

APHIDS
or BLACK or
GREEN FLIES

When the leaves and stems of your plants begin to look pale and spindly, aphids are present. Aphids can change color to match plant parts and metamorphose from nymphs to adult, both with wings and without wings. When the aphids in one plant become overcrowded, they develop wings and fly to another plant host of the same plant family. Aphids mature in 12 days.

- Clay can control aphids. Prepare a fine clay solution and spray over aphids to render their tender bodies lifeless.

- Atis (Anona Squamosa) seeds are pulverized and mixed with water. Use as spray against aphids, ants and other insects.

- Makabuhay (Tinospora Rumphi) – The roots, stems and leaves are pounded to extract the juice which is then mixed with water for use as a spray against aphids, flies, moths, worms and other insects.

BORERS

Borers hatch inside a stem and eat and grow there as caterpillars. The presence of borers is indicated by the sudden wilting of plant tops. Borers are of many kinds and attack various plants. Whatever the plant, whatever borer is inflicting it, cut off the injured stems and burn them to destroy the borers.
CATERPILLARS

The larval stage of moths and butterflies, caterpillars are of many kinds. Usually developing from patches of eggs on the underside of leaves, caterpillar feed on foliage and tender stems.

- Handpicking caterpillars and stepping on them is an effective control measure.
- Touch the caterpillar with a rag dipped in kerosene to kill it. Use the same rag to touch egg clusters so they will never hatch.
- Look for patches of eggs and clusters of young caterpillars on the undersides of leaves and nip off those leaves and burn them.

CUTWORMS

Cutworm attack newly transplanted tomato, cabbage and other seedlings. Cutting them off at the ground level during night time. One kind of cutworm climbs up into the plant to chew the leaves.

- Large irregular areas are chewed out, starting from the edge of a leaf.
- A collar of paper or a tin can with top and bottom cut out and the seedling planted in the center can prevent the cutworm from reaching the stem.
- When transplanting, stick a toothpick or a matchstick, or tough twig directly down the side of the plant stem, touching the stem. The cutworm then can not encircle and cut the stem.

NEMATODES

Nematodes are worm parasites that either stick their heads in a plant to suck the sap or actually spend their lives inside the plant. Nematodes can be controlled by the following:

- Crop rotation
- Planting pest-free stock
- Enriching the soil with humus
- Planting marigolds as their roots kill nematodes

FRUIT FLIES

Fruit flies lay eggs which develop into tiny maggots that burrow inside fruits. Maggots cause slight depressions on the fruit surface and tiny holes where they emerge. These are hardly noticeable.

- Catch the pest at its fly stage before it could lay eggs. Try this bait: Mix two teaspoons of household ammonia and 1/4 teaspoon soap powder in a quart of water. Fill a jar with the mixture and put the jar right next to the sunny side of the plant. The bait should be changed once a week or when diluted with rain.
- Collect dropped fruits and burn or dispose of them properly.

LEAF MINERS

The leaf miner damage is not serious. Leaf Miners attack spinach and many other plants. The leaf miner is a grub inside the leaf. Later, it will develop into a pupa and drop into the ground.

- Let birds and chicken feed on the pupae in the ground.
- Strong smelling herbs could repel the adult fly.
- Dusting the leaves with ashes controls the leaf miner fly.

MEALY BUGS

Mealy bugs are scale insects covering the stems of plants and sucking their juices. They are a serious pest and hard to control.

- Use a cotton swab dipped in denatured alcohol and touch each mealy bug. The alcohol penetrates the waxy protective covering, killing the mealy bug.

ROOT MAGGOT FLIES

The adult fly lays its eggs in the roots of corn, onions, cabbage, etc. The maggots hatch out and live on the roots, thus weakening the plants.
Sprinkle wood ashes liberally around the stems of seedlings. If it rains and the wood ashes become soaked, replenish with clean, fluffy ashes, preferably fresh from the fireplace. All root maggots can be controlled by wood ashes.

**SQUASH BUGS**

Squash bugs lay eggs which develop into gray nymphs with fat bodies and black legs. They suck the juice out of squash plants.

- Locate the eggs and crush them.
- Traps may be made by laying thin, flat boards slightly tilted, in the garden rows. The squash bugs assemble beneath the boards and may then be easily crushed.
- Sprinkle the squash plant with hydrated lime and wood ashes.

**WHITE FLIES**

White flies are very small, aphid-like insects, looking like very tiny moths. The nymphs are usually difficult to reach by sprays because they are on the underside of the leaves. Thus, treatments have to be repeated several times.

- Use tobacco dust.
- Spray with nicotine and soap solution.
- In very bad cases, use kerosene emulsion.

**BOTANICAL PESTICIDES**

**ATIS (ANONA Squamosa) CUSTOM APPLE**

Pulverize the seeds and mix with water. Use as a spray against aphids, ants and other insects.

**ADELFA (Nerium Indicum)**

Cut and soak the leaves and bark in water for at least 30 minutes. Use as a spray against ants, flies and other insects.

**CHRYSANTHEMUM**

Grind the dried flowers. Mix with fine clay loam and water. Spray against a wide range of insects.

Proportion: six to seven tablespoons of dried ground flower for one gallon of water.

**TUBLI (Derris Sp.)**

Pound the fresh bark and rods and extract the juice with water. Mix six tablespoons of juice to 3-4 liters of water. It makes an effective insect spray.

**MADRE DE CACAO (Gliricidia)**

Extract the juice from the leaves and stems. Mix with water and spray against insects. Fresh stems with leaves can be placed between plants to deter insects.

**MAKABUHAY (Tinosporo Rumphi)**

Pound the root, stem and leaves to extract the juice. Mix with water. Use as a spray against aphids, flies, moths, worms and other insects.

**TOBACCO (Nicotiana Tabacum)**

Boil the midribs and stem in water for a few minutes or soak for 3 – 4 days. Let cool. This is an effective spray against numerous insect pests.

**TOMATO**

Boil the stems and leaves of tomato in water. Cool it. Spray against caterpillars and black or green flies. His will also serve to deter future attack.

**KA MARYA (Artemia Vulgaris)**

Cut the branches, dry and then burn near or below plants. This will drive away insects.

**SAPONIT (Lantana Camara)**

Cut the branches, sun dry and burn. Apply the ashes to the leaves to control various beetles and leaf miners.

**LUBIGAN (Acorus Calamus)**

Powder the roots and add water. Use as an insecticide spray. Decoction of rhizome can also be used as a spray.

**SOLASI or BALANOY (Ocimum Sanctum)**

Decoction of fresh/dried leaves can be used as an insecticide.

**RED PEPPER (Capsicum, Solanaceae)**

Dry several red peppers. Grind the dried peppers just before use. Liberally sprinkle the powder to repellants.
SORO-SORO (Euphorbia Neriflora)

Use the latex as an insecticide.

MINT, OREGANO and OTHER AROMATIC HERBS

Plant these crops all around the garden plot. Their strong odor repels insects. They can also be used as spices and medicine. For every 100 square meter bed, plant 8-10 marigolds in the border and intercrop 20-25 garlic or onion bulbs.

ONION BREW

This brew should contain roots, stems and leaves of as many aromatic herbs as possible: onion, garlic, horseradish, red pepper, mustard, mints. Chop fine. Add a quart or more of water and some liquid detergent. Pour a generous amount of the mixture over plants infested with insects. If the brew ferments, it is more effective in repelling insects.

Aromatic Herbs and Soap

Chop or grind one garlic, one onion, one tablespoon hot pepper and mix with one quart water. Let it stay for one hour then add one tablespoon liquid soap detergent. Place the mixture in a tightly covered jar and store in a cool place for one week. This spray makes use of the repellant qualities of garlic, onion and hot pepper. The soap serves as sticker.

Soap and Water Spray

Mix 3 tablespoon of soap flakes and gallon of water. Spray against insects.

Wood Ash

- Root maggots in radish, onions, cabbage and other brassicas can be controlled by spreading fresh (not hot) wood ash around the plant roots. Ashes are then covered lightly with soil.
- Snails, slugs and cutworms can be controlled by encircling plants with a 3-4 inch-wide trench, 1-2 inches deep. Fill this trench with fresh wood ash. These pests will avoid crossing this trench.
- Flea beetles on tomatoes can be controlled by spraying a mixture of wood ash and water.
- Cucumber beetles can likewise be controlled by spraying a mixture of equal quantities of wood ash and powdered lime mixed with soapy water.

NOTES

Healthy, organic soil grows healthy plants that resist pests. In a garden fed with humus, manure and compost, the soil hosts a wide variety of beneficial micro-flora that trap nematodes and destroy or keep in dormancy disease organisms, thereby encouraging beneficial insects. Other means of pest control:

- Tilling promotes healthy soil exposes pests that live in the soil, increases soil aeration and oxygen supply to promote root growth of plants and permits better root penetration.
- Crop rotation dissociates micro-organisms building up around plant roots as each crop has a characteristic microbial association.
- Crop combinations such as legumes and potatoes, control nematodes.
- Aromatic herbs like marigolds, mint, garlic onions, oregano control nematodes and repel insects and should, thus, be raised as companion crops in your garden.

- Keep the garden small and the plants varied to prevent insect infestation.
- A principle of pest control: Plant any crop at a time when its particular pest is in an inactive stage.
- Plant indigenous varieties of vegetables. They are resistant to pests and adapt very well to the local environment.
Storing Vegetable Seeds

STORING SEEDS

DRYING

Seeds respire, producing water and carbon dioxide. The more moisture in the seeds, the faster it respires. The water produced from respiration makes the seeds damp, moldy and vulnerable to insect attacks.

How to Dry Seeds

1. Lay a mat or plastic sheet on the ground where the sun shines all day.
2. Spread the wet seeds thinly over the mat.
3. Stir and turn the seeds four to five times a day.
4. Before it rains or gets dark, cover the seeds and take them indoors.
5. In the succeeding days, do the same procedures (1, 2, 3, & 4) until the seeds are well-dried.

How to Determine If Seeds are Well-Dried

- Large, thin seeds will break with a “snapping” sound when twisted between the fingers.
- Large thick seeds will break with a “crack” when bitten between the front teeth.
- Small seeds will break with a cracking sound when squeezed between the fingernails.

CLEANING

Store only well-dried seeds. They will live longer than the not so thoroughly dried ones. Remove any small, misshapen or broken seeds, as well as dirt, stones, straw or any rubbish. Keep the good, well-formed seeds. This will assure you of a good crop of large, healthy plants.

PROTECTING SEEDS FROM INSECTS

Dry Wood Ash

For every kilogram of seeds to be stored, gather 500 grams of fresh, dry ash that has already cooled. After the ash has been mixed with the seed, add a little more to cover the seed in the container.

Lime

For every kilogram of seeds to be stored, you need 50 grams or 15 teaspoonfuls of lime. Mix the lime thoroughly with the seed by shaking it in the container in which it is to be stored.

Vegetable Oil

Coconut oil or any vegetable cooking oil stops bruchid beetles from damaging bean seeds.

1. Have two teaspoonfuls of vegetable oil for one kilogram of beans
2. Mix the oil with about a quarter of the bean seeds.
3. Take a clean, dry plastic bag, tin bottle or glass jar. Make sure it is large enough to hold all the seeds.
4. Place a quarter of the seeds into the container.
5. Mix well until all the seeds are coated with oil.
6. Add the rest of the seeds to the container.
7. Mix well until the rest of the seeds are coated with oil.
8. If the seeds appear to be shiny, the seeds are ready to be stored.

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STORAGE CONTAINERS

Use a seed storage container that is just large enough to hold all your seeds. Do not put a small amount of seed into a large container. If you do, the seeds may become moist and then get moldy.

Store seeds in a cool, shaded place. Heat kills seeds, so do not place the seeds directly over the fire or in the sunlight.

If you have many types of seeds to store, they can be put in a large tin or glass jar. Whatever container you are using, be sure that the seeds remain dry and cannot be attacked by insects, rats or birds. Air and moisture – proof glass containers with tightly fitting lids are most appropriate for storing your seeds.

KEEPING SEEDS DRY INSIDE LARGE CONTAINERS

Whenever a storage container is opened, the seeds can absorb moisture from the air. So open a seed storage container as quickly as possible and then reseal the container.

Toasted White Rice

Toasted white rice can draw moisture out of the air. Have enough toasted rice to quarter-fill your container. Put the toasted rice into the storage jar as soon as it is cool, then put the bags or packets of seeds in and close the container. Each time you open the container, remove the old toasted rice and replace it with freshly toasted rice.

Dry Ashes

Dry ashes from your wood fire collected in the morning before the fire is lit again can also be used in place of toasted white rice. Use only white ash. Any wood or charcoal mixed with ash should be removed.

Quarter-fill your container with ash. Cover it with a little dry paper or a small piece of plastic then put the bags or packets of seeds in and close the container. Each time you open the container, remove the old ash and replace it with fresh ash.

HOW LONG WILL SEEDS KEEP

There are seeds that remain alive much longer than the others. Seeds can remain usable and viable even in a period of ten years, depending on the variety of the seeds and the storage conditions.

<table>
<thead>
<tr>
<th>Seeds</th>
<th>Number of Years It Could Remain Alive</th>
</tr>
</thead>
<tbody>
<tr>
<td>String Beans</td>
<td>4</td>
</tr>
<tr>
<td>Cucumber</td>
<td>5</td>
</tr>
<tr>
<td>Onion</td>
<td>2</td>
</tr>
<tr>
<td>Pea</td>
<td>2</td>
</tr>
<tr>
<td>Radish</td>
<td>3</td>
</tr>
<tr>
<td>Squash</td>
<td>4</td>
</tr>
<tr>
<td>Tomato</td>
<td>3</td>
</tr>
</tbody>
</table>

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