



WORKSHOP RESOURCES 2

Participant Hand outs



Notes...

About these handouts

These simple handouts have been designed to be easy to photocopy so that they can be duplicated and given to workshop participants and / or interested community members.

They can be used as “take-home” resources and references for related lessons and / or distributed in local communities for raising public awareness about the related issues.

Whenever it is appropriate, please encourage your workshop participants to take this information home and share it with their families and other people in their community. This will help to increase awareness and therefore support for the ongoing application of Permaculture Principles in their area.

More educational media and handouts available for free downloading from the Yayasan IDEP web site at :

- **In Bahasa Indonesia :** www.idepfoundation.org/indonesia/idep_downloads.html
- **In English :** www.idepfoundation.org/idep_downloads.html

Facilitators should also be encouraged to make their own versions of handouts by:


- Copying relevant section of the Permaculture Reference Book
- Downloading other information from the internet and creating handouts
- Designing their own handouts that match the materials delivered & local needs

Please send us your feedback and suggestions about these handouts and other handouts that would be useful for your trainings.

If you design any new ones and would like to share them with other facilitators throughout Indonesia feel free to send copies to IDEP for ongoing consideration for publishing in later editions of these books.

Thank you and best wishes for your trainings and activities!

Please send your feedback, comments and new ideas to: info@idepfoundation.org



Notes...

What is Permaculture?

Permaculture is a design system that works towards harmonious integration of landscape and people to provide food, shelter, energy and other needs in a sustainable way. It takes into account food production, structures, technologies, energy, natural resources, landscape, animal systems, plant systems, and social and economic structures. It is applicable to urban and rural conditions and any scale of design. The 10 basic principles of Permaculture design are guidelines that you can apply to any project. They are demonstrated in the image below, can you find them?

Permaculture is about working with, rather than against, nature.



Permaculture is = PERMANent AgriCULTURE + PERMANent CULTURE

Permaculture draws upon traditional practices of earth stewardship integrated with appropriate modern technology. The term "Permaculture" was coined in the 70s by Bill Mollison and David Holmgren. Today, Permaculture work is being carried out in over 100 countries by many thousands of permaculture design course graduates.

Permaculture Ethics are Earth care • People care • Fair share

To see how these ethics are applied, you can use these design principles for Permaculture design (other side of this fact sheet).

For more information about Permaculture see : www.idepfoundation.org

Text by Morag Gamble of SEED International • Translation & Design by Yayasan IDEP • Illustrations by Rappy & Zion

10 Permaculture Principles



1. The Principle of Diversity - Aims to integrate a variety of beneficial species of food, plants and animals into design. This builds a stable interactive polycultural system which provides for human needs and also for the needs of other species.



2. The Principle of Edge Effect - In general, there is more energy and more diversity of life on the edge where two types of natural systems overlap. On these borders one can access the resources of both sides. Using the edge effect, and other natural patterns that you observe, creates the best effect.



3. The Principle of Energy Planning - Placing the elements of your design in such a way as to minimise the use of energy (including fossil fuels & human labor). Utilizing the energy and resources that you have, first on-site and then from outside the system, as effectively as possible. Onsite energy resources include natural forces such as gravity, windpower, waterpower. This saves time, energy and money.



4. The Principle of Energy Cycling - In a natural system there is no waste or pollution. The output from one natural process becomes the resource for another. Recycle and reuse all of resources as many times as possible.



5. The Principle of Scale - Creating "human-scale" systems. Choose simple, appropriate technologies for use in designs. Only create systems that are manageable. Start small and take achievable steps towards an ideal goal.



6. The Principle of Biological Resources - Using natural methods and processes to achieve tasks. Find things in nature (plants, animals, microbes) that are supportive of the system design and minimize outside energy input.



7. The Principle of Multiple Elements - Support each vital need and essential function in more than one way, so that a temporary failure in one element will not stop the functioning of others. Also, recognize that there is almost always more than one way to achieve any task.



8. The Principle of Multiple Functions - Most things can be used in a variety of ways and for a variety of functions. One rule of thumb in Permaculture is to try to design three uses for every element of the system. This can save space, time and complication in any particular project.



9. The Principle of Natural Succession - Work with nature and the processes of natural systems. Anticipate future developments through research and observation when necessary.



10. The Principle of Relative Location - Place every element of your design in relationship to others so that they benefit from each other. For example, store tools near where they will be used.

What do you know about GARBAGE?

THE MOST IMPORTANT THING IS...



Don't Burn Garbage

because the poisons that are in some garbage will be released into the atmosphere, & into the air we breathe which will make us all sick.



Don't Bury Garbage

because the poisons in some garbage seep into the soil around the area where it has been buried, and it gets into the water below the soil. This will make the things that live in the area sick.



Don't Dump Garbage

because the poisons in some garbage will get in the water & soil. Then things & our environment will get sick as more & more poisons are everywhere.

1 .

When you throw away plastic and things that are made from plastic (for example: plastic bags, candy or snack wrappers, styrofoam, sponge packing materials etc) it will take about 200 to 400 years for the plastics to decompose.

2. Burning plastic releases dangerous toxic wastes into the atmosphere and therefore into the air that we breathe. Breathing this pollution has serious negative effects on our health, including, weakening our immune systems & lung cancer.

3. If you throw organic wastes away that are still contained inside plastic bags or plastic containers they will not be able to decompose. So make sure you take your organic wastes out of plastic containers before composting.

I don't want to make myself or others sick, but what can I do with all my garbage? First you need to separate your waste!

WHY? Because waste can still be used if it is separated into categories...

Organic Wastes



Organic wastes 'food scraps, leaves etc) can be used to make compost, which is great food for your gardens and pot plants

Other Wastes



Other types of wastes like jars, cans, tires, bottles, buckets, etc can be fixed & used in creative ways like these. If they can't then do make sure they get picked up by local pemulung for recycling.

Paper Waste



You can use paper wastes to make your own hand made recycled paper, or to decorate books and for other things. Always remember to use both sides of the paper you write on.

Plastic Waste



Plastics are really bad for our natural environment and our health. They are quite difficult to recycle, so try to reduce your use of plastic as much as possible. When you shop use a cloth bag & don't accept any plastics.

For more information, please see : www.idepfoundation.org



Notes...

How do we Take Care of our Wastes?

THE MOST IMPORTANT THING IS DO NOT...



BURN GARBAGE

the toxins (poisons) that are in some of the garbage will be released in smoke into the atmosphere, and the air that we breathe which will eventually make us all sick.



BURY GARBAGE

the toxins (poisons) in some wastes will seep into the soil around the area where they have been buried, and filter through to the water below the soil. This will damage the things that live in the area.

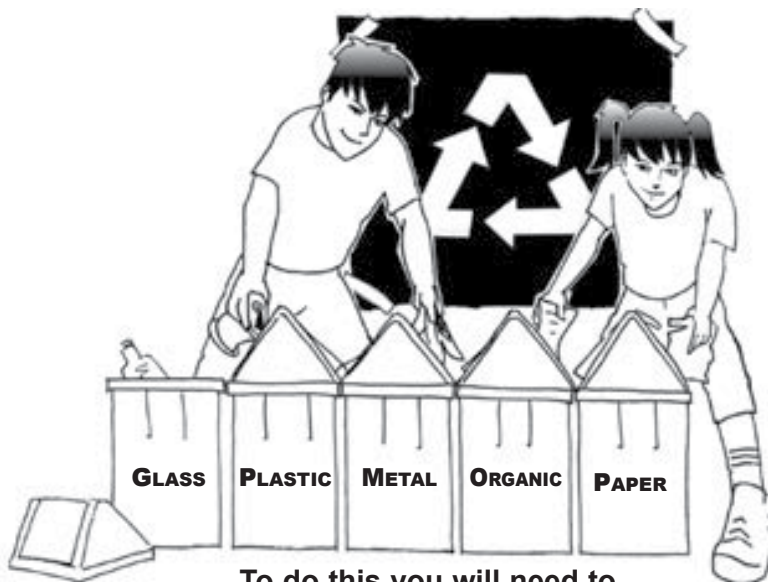


DUMP GARBAGE

the toxins (poisons) in some garbage will get into the water & soil. Living things & the environment will become sick as more more poisons will run everywhere.

I don't want to make myself or others sick. But what can I do with all my wastes? There are lots of things that you can do to reduce your wastes and recycle what you have.

First : you need to separate wastes...



To do this you will need to have some special bins to put the different types of wastes in.

Why should I separate my garbage ?



ORGANIC WASTES

(food scraps, leaves etc) you can use these to make compost, which is great food for your gardens!

PAPER WASTES

you can use your paper wastes to make beautiful hand made recycled paper, contact Yayasan IDEP for more information!

OTHER WASTES

(old tires, buckets, cans, bottles, etc.) You can reuse in creative ways like shown above, or call up your local recycling program to have them picked up.

REMEMBER !

PLASTIC is one of the types of garbage that is really dangerous for the environment, it is also very difficult to recycle, so try to reduce your use of plastic. When you shop use a cloth bag and don't accept any plastic ones !

plastic? no thanks !



For more information visit :
www.idepfoundation.org

Reduce the negative impacts of waste and its side effects!

we all need to work together...

If everyone can understand about the dangers of toxic waste, reduce how much waste they make and learn how to recycle most of the waste left over, then our planet can be much healthier! Tell your friends and family about these important facts about garbage, and how they can practice good waste management.

A few facts about Garbage and its impacts on us and our living planet...

1. When you throw away plastic and things that are made from plastic it will take about 200 to 400 years for the plastics to decompose!
2. Burning plastic releases dangerous toxic wastes into the atmosphere and therefore into the air that we breathe. Breathing this air has serious negative effects on our health, including, weakening our immune systems and lung cancer.
3. If you throw organic wastes away that are still contained inside plastic bags or plastic containers they will not be able to decompose. So make sure you take your organic wastes out of plastic containers before composting.



Lets do some 'Garbage Math'...

In our small village...

1 family makes about one full plastic bag of garbage each day.



There are about 2,000 families in our village. so how many bags of garbage does our village produce in one day ?



**1
BAG
PER
DAY?**



ONE TRUCK HOLDS 200 BAGS

One regular garbage truck can hold about 200 plastic bags of garbage. So, how many trucks of garbage does our village produce in one day ?

**2
TRUCKS
PER
DAY?**

There are 365 days in a year.
So, how many trucks of garbage does our village produce per year ?

**3
TRUCKS
PER
YEAR?**

You can fit about 400 trucks in a football field. So, how many football fields of garbage will our village produce in the next 5 years ?



**4
FOOTBALL
FIELDS IN
5 YEARS?**

START THE 3 Rs TODAY...RECYCLING - REUSING - REDUCING

www.idepfoundation.org

WHAT DO YOU CARE ABOUT...

PLASTIC is one of the types of garbage that is really dangerous for the environment, it is also very difficult to recycle, so try to reduce your use of plastic! When you shop use a cloth bag and don't accept any plastic ones!

Did You Know That....

1. When you throw away plastic and things that are made from plastic (for example: plastic bags, candy or snack wrappers, styrofoam, sponge packing materials etc) it will take approximately 200 to 400 years for the plastics to decompose.

2. Burning plastic releases dangerous toxic wastes into the atmosphere and therefore into the air that we breathe. Breathing this pollution can have serious negative effects on our health, including, weakening our immune systems & lung cancer.

3. If you throw organic wastes away that are still contained inside plastic bags or plastic containers they will not be able to decompose. So make sure you take your organic wastes out of plastic containers before composting.



Just by saying this for one day of shopping Budi managed to avoid collecting over 30 plastic bags!



DON'T BURN GARBAGE

Because the poisons that are in some garbage will be released into the atmosphere, & into the air we breathe which will make us all sick.



DON'T BURY GARBAGE

because the poisons in some garbage seep into the soil around the area where it has been buried, and it gets into the water below the soil. This will make the things that live in the area sick.



DON'T DUMP GARBAGE


because the poisons in some garbage will get in the water & soil. Then things & our environment will get sick as more & more poisons are everywhere.



Take Action Today for a Better Future !

1. Organize a clean up in your local community or school 2. Learn more about recycling and how you can get involved 3. Take your school on a field trip to the garbage dump and talk about what you see 4. Tell your friends and family about the dangers of plastic for our health and our environment, encourage them to use cloth bags too 5. Hold a cloth bag design competition in your area.

For more information see : www.idepfoundation.org



Notes...

HOW MUCH GARBAGE DO YOU SEE

IN YOUR FUTURE?

In our small village 1 family makes about one plastic bag of garbage each day.



There are about 2,000 families in our village, HOW MANY BAGS OF GARBAGE DOES OUR VILLAGE CREATE PER DAY?



One garbage truck holds about 200 bags of garbage. HOW MANY TRUCKS OF GARBAGE DOES OUR VILLAGE FILL UP PER DAY?



There are 365 days in a year. HOW MANY TRUCKS OF GARBAGE DOES OUR VILLAGE FILL UP PER YEAR?

You can fit about 400 trucks in a football field.

HOW MANY FOOTBALL FIELDS OF GARBAGE WILL OUR VILLAGE MAKE IN THE NEXT 5 YEARS?



Yikes! That's a lot of garbage, how will we live if everywhere is full of trash!!! Can't someone fix it? What can I do? There are LOTS of things that you can do! And it's only if we all work together and do our part that we will be able to make our world safe and clean again.

FIRST try to make LESS garbage that's called REDUCE. You can do this by using cloth bags instead of getting new plastic ones when you go shopping, refilling your aqua bottle instead of buying a new one, avoid buying things that have a lot of plastic packaging etc.



Next, you can use things over again, that's called REUSE. For example always use both sides of your paper, and use old cans to plant flowers or herbs in, or tin cans as pencil holders, (decorate them so they look cool!).

You can also recycle things. That means changing something that you were going to throw away into something new. For example, you can use waste paper to make new paper, or compost your kitchen wastes which will make your potted plants or garden grow well and give you more healthy plants, cool ya?



What cool ideas
do you have about things
you can do to start to
REUSE • REDUCE • RECYCLE



SOME THINGS YOU CAN DO TO TAKE ACTION NOW FOR A BETTER FUTURE

- (1) Organize a clean up event in your local community or school.
- (2) Learn more about recycling and how you can get involved
- (3) Take your school on a field trip to your local garbage dump and talk about what you see.
- (4) Tell your friends and family about the dangers of plastic for our health & environment & encourage them to use cloth bags too.

For more information see : www.idepfoundation.org

REMEMBER

DON'T BURN GARBAGE
Because the poisons that are in some garbage will be released into the atmosphere, & into the air we breathe which will make us all sick...



DON'T BURY GARBAGE
because the poisons in some garbage seep into the soil around the area where it has been buried, and it gets into the water below the soil. This will make the things that live in the area sick.



DON'T DUMP GARBAGE
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Notes...

Lets Make Recycled Hand Made Paper

The tools & materials that you will need to make your hand made paper are :



a silk screen frame



waste paper



bricks



bucket



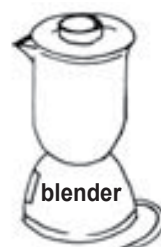
an iron



water



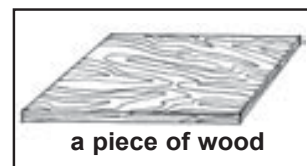
several pieces of cotton cloth & a large piece of sponge



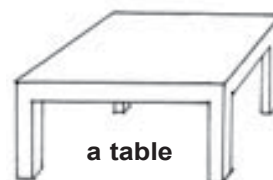
blender



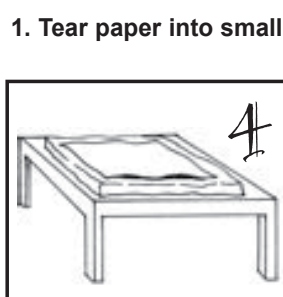
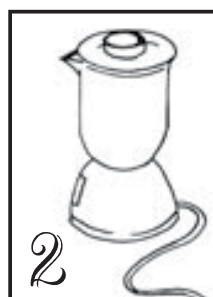
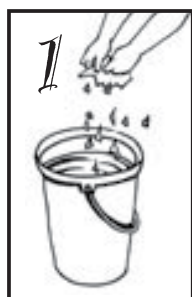
a tub



a piece of wood



a table

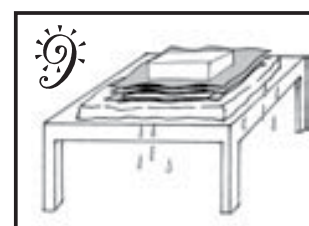
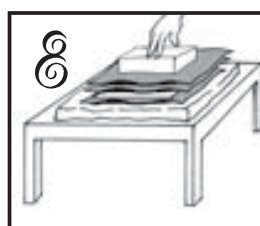
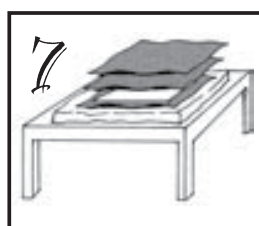
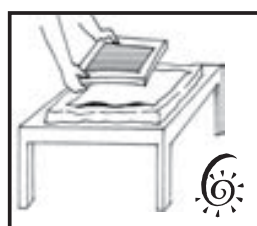


1. Tear paper into small pieces and soak in water for one day.

2. Blend the mixture in the blender until it is like porridge.

3. Put your "paper porridge" in the tub with more water.

4. Place the sponge on your table and put a piece of dampened cloth on top.



5. Place the screen in the tub and drain off as much water as you can.

6. Place the mixture onto the cloth by turning the screen over onto the cloth that you have prepared on your table.

7. Place another piece of cloth (that you have moistened) on top of this and repeat process 5 & 6 several times.

8. After you have made many layers of wet paper & cloth place the piece of wood on top, then the heavy bricks on top of that.

Leave the "press" alone for about 1-2 hours, until the extra water has dripped off, make sure it is really dry.



Pick up the cloth-paper layers on by one and hang them in a hot place.



Then iron the paper-cloth layers one by one until they are really dry.

Now you have Ready-To-Use, Hand-Made, Recycled Paper !

If you would like to try something different, here are some Special Techniques...



1. Applique Technique

When you have just placed the porridge onto the cloth, you can put some small flowers, small leaves, or grass, onto the paper before you press it.



2. Mixing Technique

While you are blending the porridge mixture in the blender throw in some natural materials that will add color or texture (see reverse for some ideas).



3. Pressing Technique

Before you start the pressing process, add some big leaves with nice deep textures into the layers.

Here are some ideas of things that you can make with your paper...



- Paper for drawings and craft projects
- Paper to wrap presents, books, jars, etc.
- Cards, invitations, envelopes, folders, etc.

Your hand made paper is also good for covering other crafts that you can make from recycled cardboard...!



- Pencil holders
- Photo frames
- A gift box

Some natural materials you can use to give color to your paper....

If you want to try making paper with some special colors, try adding these liquids into the blender while you are making your “porridge” (you will need to grate / press & sieve the natural materials first) some of these colors are very strong so use rubber gloves for this project.

TUMERIC : when grated & sieved, it depletes Yellow color

DAUN JATI : when grated & sieved, it depletes Red color

DAUN PANDAN WANGI : when grated & sieved, it depletes Green color

GAMBIR : when grated & sieved, it depletes Black color

PACAR CINA : when grated & sieved, it depletes Pink color

NILA : when grated & sieved, it depletes Blue color



For more information, please visit : www.idepfoundation.org

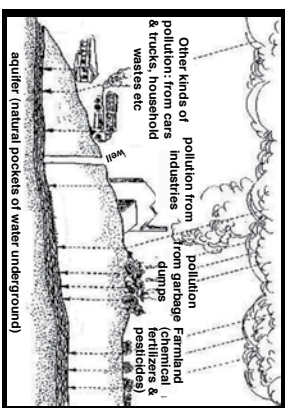
What do you know about Water?

We use water every day. For cooking, drinking, washing, growing food & making almost everything we use.

Our bodies are made up of more than 80% water!

Clean

Fresh Water (water that isn't full of salt like sea water, or polluted like sewage water or waste water) is one of the most precious resources we have. Without fresh water we couldn't live on this planet. Unfortunately there are big problems with fresh water in our world today because of pollution from people and industries. Many of the places that supply us with fresh water (like forests, rivers and lakes) are being lost. And many fresh water sources are now becoming dirty and polluted.



**We need to save fresh water!
How can we do that?**

We can understand how precious our fresh water is and ...



- Don't throw wastes into rivers & oceans
- Don't leave taps on when you aren't using them
- Fix broken taps as soon as they start leaking
- Learn how to collect, store & use rain water
- Figure out how you can reuse water as much as possible

What is Wastewater?

Wastewater is water that has been contaminated by chemicals, from human or animal waste, water that is used in toilets (blackwater), or water already used for bathing and washing things (graywater).

What can blackwater do to our environment?

That depends on how you dispose of your blackwater. If you put it into a septic tank and the septic tank isn't properly sealed, then the blackwater will start seeping into the ground, and contaminate your well water or the ground water, which flows below you. If you put blackwater into rivers or the sea it will eventually kill the fish and other sea life around the area, as well as causing human illness for those who come into contact with that water.

What can we do about our blackwater?

Blackwater needs to be treated before it flows back into the environment. Wastewater Gardens® systems purify blackwater so that it can be safely returned to earth. Doing this will help conserve our precious fresh water resources.

Today, Wastewater Gardens® are purifying and conserving water in many countries all over the world. You can see samples of some of these gardens on our website: www.pcrf.org

WasteWater Gardens® are a great way for us to make our water clean, to reuse water & to help conserve our fresh water resources!

A Wastewater Gardens® Fact Sheet

How you can conserve & clean

**Water
with
Wastewater
Gardens®**

Information about Wastewater Gardens® You can visit:

www.idepfoundation.org/wwg

How do Wastewater Gardens® purify & conserve water?

Normally wastewater from your

toilets (called blackwater) goes to your septic tank, and disappears into the ground below you. This pollutes your well water and groundwater (the water that flows below the earth's surface). Using rivers or water channels as toilets can be very dangerous for yourself and other bathers, especially children, as there are many diseases and infections that you can catch from this.

In the Wastewater Gardens® system blackwater flows through a sealed (water tight) septic tank into a Water-tight, plant-filled living water treatment system. The plants use the rich nutrients in the blackwater to grow. At the same time oxygen & microbes that are in the Wastewater Gardens® eliminate harmful bacteria that would cause disease from untreated sewage. **And when water comes out of the Wastewater Gardens® after treatment, the water that flows out of the Wastewater Gardens® is clean enough to water your gardens and farms!**

The wastewater from washing & cleaning (called graywater) can be piped straight from your sinks and is kept below ground, draining through a bed of gravel so there is no danger from contact and can be directly used for irrigating your gardens.

In the system shown here, Wastewater Gardens® 1 uses

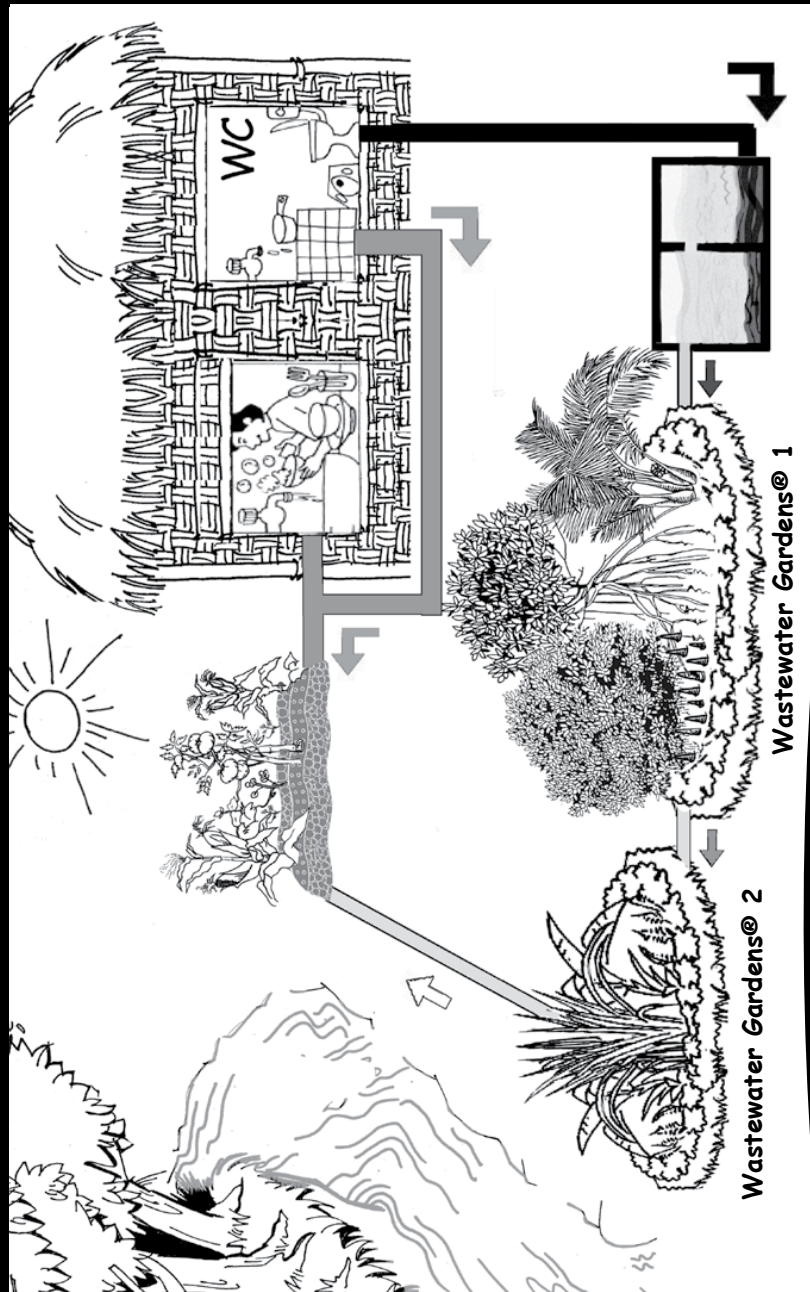
Mangrove
Trees &
Shrubs,

which can be used for food, medicine & crafts.

&

Wastewater Gardens® 2

uses native wetland plants, water-tolerant fruit trees, such as banana & papaya & medicinal herbs.



Wastewater
Gardens®

Eliminate the risk of diseases that come from contact with blackwater

Are a low-cost, long-lasting appropriate technology and easy to maintain

Don't have bad odors

Mosquitoes don't breed in them

Can be made any size; for homes, clinics, schools, hospitals and even communities

Can use either fresh water, salt water or mixed

Save water in dry areas, as water from WWGs can be used for irrigation

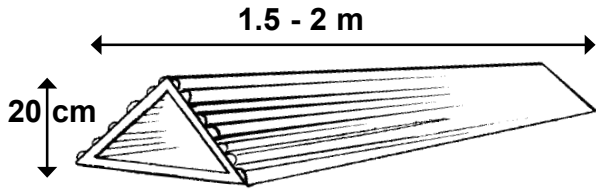
Are beautiful gardens that grow well even in very dry areas

The plants grown in WWGs are often locally available & are very productive & healthy

to see pictures of Wastewater Gardens® all over the world see : www.idepfoundation.org/wwg

Making Triangle Compost

This is a technique for making compost using an "air tunnel" for extra oxygenation, which speeds up the composting process. To do this you will need a long triangular frame which you can make yourself. The "air tunnel" frame is made from wood or bamboo with the following approximate size : 20cm high and 1.5-2 meters long. Make two of these frames and keep them together.



Keys to Good Composting

1. The carbon / nitrogen ratio

A mixture of dry leaves, sawdust, or other sources of carbon combined with manure, green plants, or fertilizer for nitrogen (approximately 4:1 by volume).

2. The presence of microorganisms

A few shovels full of rich garden soil or compost will supply these.

3. The moisture level

The pile should have the moisture of a well-squeezed sponge. Add water as needed.

4. The oxygen level

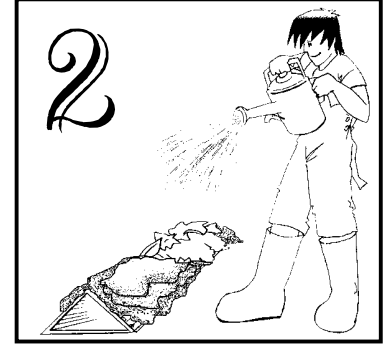
A compost pile should be turned periodically to promote decay of its contents. Turning the pile adds oxygen, so the more you turn it, the faster it breaks down. (Turning heavy, rotting leaves and grass is vigorous exercise!)

5. The particle size

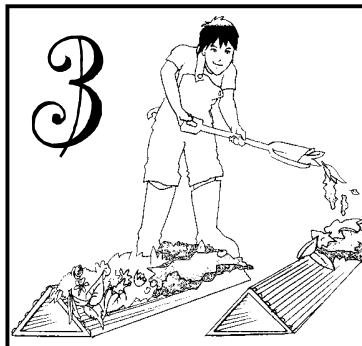
The finer the particle size, the more surface there is for microorganisms to work. Shredding leaves and larger materials generates compost faster.



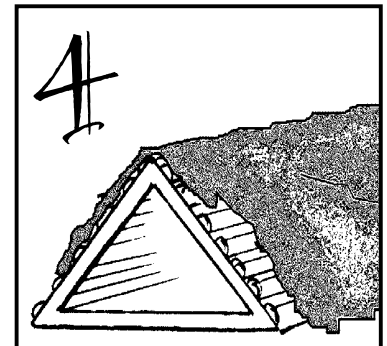
Place carbon & nitrogen materials on top of one of the triangle frames, leave the other one alone.



Each day, add more materials for composting and water the materials so that they stay damp.



Once the materials start to turn black (like soil), move the composting materials onto the other frame that you have made. Put more materials on the first frame again.



Keep the moisture level of the compost even by watering the compost pile regularly. It will take about 6 weeks for your compost to be ready - when it is all black.



Once your compost is made, you can use it in your garden plants. Keep the compost making process going so you always have stock.



The compost that you have made will help your garden, plants and soil to be more healthy and fertile.

**Using Compost =
healthy soil + gardens**

Troubleshooting Composting Problems

The compost pile is only damp and warm in the middle of the pile.

Probable Cause

The compost pile is too small, or cold weather may have slowed composting processes down.

Suggested Solution

If you are only composting in piles, make sure your pile is at least 1 meter high and 1 meter wide. With a composting cage or triangle composting system, the pile doesn't need to be so large.

Nothing is happening. Compost pile doesn't seem to be heating up at all.

Probable Cause

1. Not enough nitrogen material
2. Not enough oxygen getting to compost
3. Not enough moisture in compost pile
4. Compost is finished - ready to use!

Suggested Solution

1. Make sure you have enough nitrogen rich sources like manure, grass clippings or food scraps.
2. Mix up the pile so it can breathe, or switch to compost cage or triangle system.
3. Mix up the pile and water it with the hose so that there is more moisture in the pile - a completely dry pile won't compost.

Matted leaves / clippings aren't decomposing.

Probable Cause

Not enough aeration, and / or lack of moisture.

Suggested Solution

1. Avoid thick layers of only one type of material. Too much of something like leaves, paper or grass clippings won't break down well.
2. Break up the layers and mix up the pile so that there is a good mix of materials.
3. Shred into small pieces any large materials that aren't breaking down well.

The compost smells like rancid butter, vinegar or rotten eggs.

Probable Cause

Not enough oxygen, and / or the compost pile is too wet, or compacted.

Suggested Solution

1. Mix up the pile so that it gets some aeration and can breathe. Or use a compost cage or triangle system.
2. Add coarse dry materials like straw, hay or leaves to soak up excess moisture.
3. If smell is too bad, add dry materials on top and wait until it dries out a bit before you mix the pile.

The compost smells like ammonia.

Probable Cause

Not enough carbon materials in the compost

Suggested Solution

Add more brown carbon materials like sawdust, rice husks, leaves, straw, hay, shredded newspaper, etc.

The compost is attracting rodents, flies, or other animals.

Probable Cause

Inappropriate materials (meat / oil), or the food-like material is too close to the surface or sides of the compost pile.

Suggested Solution

Bury kitchen scraps near the center of the pile. Don't add inappropriate materials (bones / meat) to your compost. Switch to a compost cage.

The compost is attracting insects, millipedes, slugs, etc.

This is normal composting, and part of the natural process. It is not a problem.

The compost is attracting Fire Ants

Probable Cause

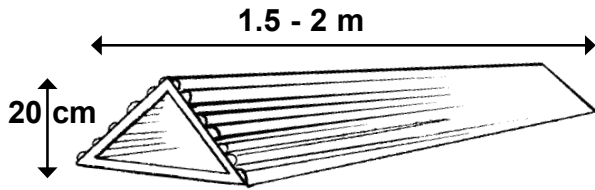
Pile could be too dry, not hot enough, and / or has kitchen scraps too close to the surface.

Suggested Solution

Make sure your pile has a good mix of materials to heat up, and is kept moist enough.

Making Triangle Compost

This is a technique for making compost using an "air tunnel" for extra oxygenation, which speeds up the composting process. To do this you will need a long triangular frame which you can make yourself. The "air tunnel" frame is made from wood or bamboo with the following approximate size : 20cm high and 1.5-2 meters long. Make two of these frames and keep them together.



Keys to Good Composting

1. The carbon / nitrogen ratio

A mixture of dry leaves, sawdust, or other sources of carbon combined with manure, green plants, or fertilizer for nitrogen (approximately 4:1 by volume).

2. The presence of microorganisms

A few shovels full of rich garden soil or compost will supply these.

3. The moisture level

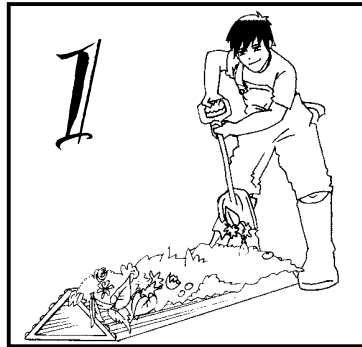
The pile should have the moisture of a well-squeezed sponge. Add water as needed.

4. The oxygen level

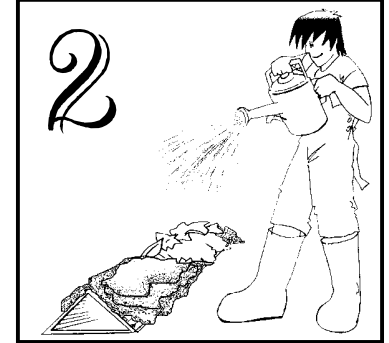
A compost pile should be turned periodically to promote decay of its contents. Turning the pile adds oxygen, so the more you turn it, the faster it breaks down. (Turning heavy, rotting leaves and grass is vigorous exercise!)

5. The particle size

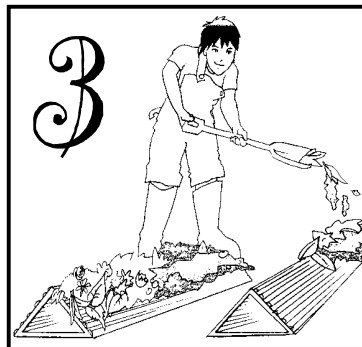
The finer the particle size, the more surface there is for microorganisms to work. Shredding leaves and larger materials generates compost faster.



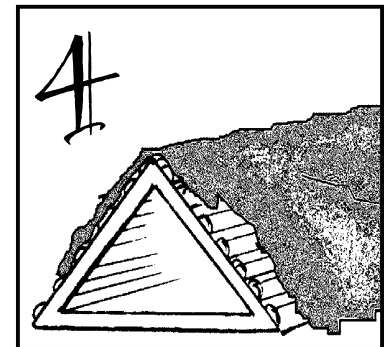
Place carbon & nitrogen materials on top of one of the triangle frames, leave the other one alone.



Each day, add more materials for composting and water the materials so that they stay damp.



Once the materials start to turn black (like soil), move the composting materials onto the other frame that you have made. Put more materials on the first frame again.



Keep the moisture level of the compost even by watering the compost pile regularly. It will take about 6 weeks for your compost to be ready - when it is all black.



Once your compost is made, you can use it in your garden plants. Keep the compost making process going so you always have stock.



The compost that you have made will help your garden, plants and soil to be more healthy and fertile.

**Using Compost =
healthy soil + gardens**

Troubleshooting Composting Problems

The compost pile is only damp and warm in the middle of the pile.

Probable Cause

The compost pile is too small, or cold weather may have slowed composting processes down.

Suggested Solution

If you are only composting in piles, make sure your pile is at least 1 meter high and 1 meter wide. With a composting cage or triangle composting system, the pile doesn't need to be so large.

Nothing is happening. Compost pile doesn't seem to be heating up at all.

Probable Cause

1. Not enough nitrogen material
2. Not enough oxygen getting to compost
3. Not enough moisture in compost pile
4. Compost is finished - ready to use!

Suggested Solution

1. Make sure you have enough nitrogen rich sources like manure, grass clippings or food scraps.
2. Mix up the pile so it can breathe, or switch to compost cage or triangle system.
3. Mix up the pile and water it with the hose so that there is more moisture in the pile - a completely dry pile won't compost.

Matted leaves / clippings aren't decomposing.

Probable Cause

Not enough aeration, and / or lack of moisture.

Suggested Solution

1. Avoid thick layers of only one type of material. Too much of something like leaves, paper or grass clippings won't break down well.
2. Break up the layers and mix up the pile so that there is a good mix of materials.
3. Shred into small pieces any large materials that aren't breaking down well.

The compost smells like rancid butter, vinegar or rotten eggs.

Probable Cause

Not enough oxygen, and / or the compost pile is too wet, or compacted.

Suggested Solution

1. Mix up the pile so that it gets some aeration and can breathe. Or use a compost cage or triangle system.
2. Add coarse dry materials like straw, hay or leaves to soak up excess moisture.
3. If smell is too bad, add dry materials on top and wait until it dries out a bit before you mix the pile.

The compost smells like ammonia.

Probable Cause

Not enough carbon materials in the compost

Suggested Solution

Add more brown carbon materials like sawdust, rice husks, leaves, straw, hay, shredded newspaper, etc.

The compost is attracting rodents, flies, or other animals.

Probable Cause

Inappropriate materials (meat / oil), or the food-like material is too close to the surface or sides of the compost pile.

Suggested Solution

Bury kitchen scraps near the center of the pile. Don't add inappropriate materials (bones / meat) to your compost. Switch to a compost cage.

The compost is attracting insects, millipedes, slugs, etc.

This is normal composting, and part of the natural process. It is not a problem.

The compost is attracting Fire Ants

Probable Cause

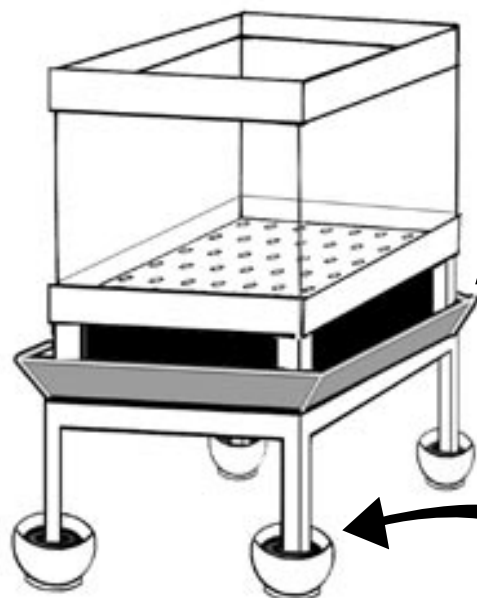
Pile could be too dry, not hot enough, and / or has kitchen scraps too close to the surface.

Suggested Solution

Make sure your pile has a good mix of materials to heat up, and is kept moist enough.

MAKING A WORM FARM

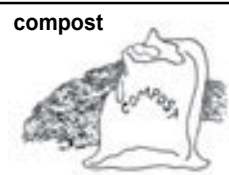
The main box of your worm farm can be made from many materials such as bamboo or more durable plastic or glass. Be sure that the base of the box is perforated so you can collect worm juice (yum!)



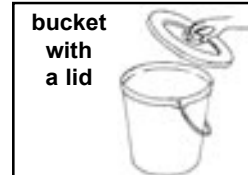
"Worm Juice" is liquid that the worms make, it is great plant food!

It can be easily collected in a tray placed below the main box of your worm farm. The wetter the worm food, the more worm juice you get.

Important! Make sure that the worm farm legs are placed in lubrication oil or soapy water so that ants won't come in.



compost



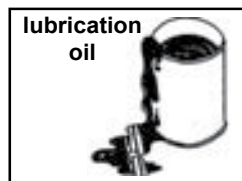
bucket with a lid



kitchen scraps



A lid for your worm farm



lubrication oil



worms

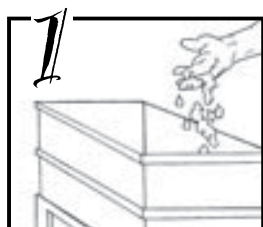


rubber gloves



a dark place to protect from sun & rain.

These are the steps in setting up your Worm Farm...



Put about 15cm compost into the box of the farm



Mix kitchen scraps or plant leaves and stems into compost



Add water to the top box - just enough to make the compost moist

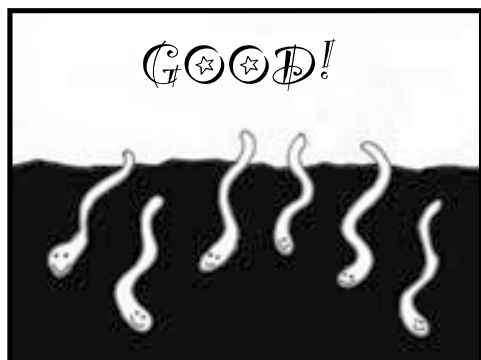


Use gloves (if you want) and mix everything together



Gently add worms (about 1 kg) into the compost mixture in box

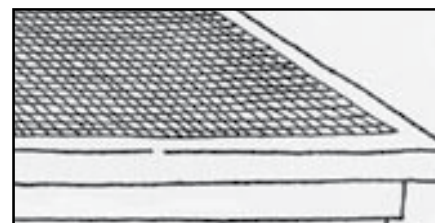
Check if your worms are happy in their new home...



If your worms DISAPPEAR (in other words, go down inside the compost) they like it.



If they stay on, or return to the surface, there's something wrong with your compost mixture



Close lid firmly to keep out Worm Eaters! Lids can be made from chicken wire (if farm is sheltered from rain), rubber, plastic, tin or wood but make sure it is ventilated, so your worms can breathe.

FOR HEALTHY WORMS

Worms are really useful, they take certain types of kitchen scraps and turn them into excellent 'CASTINGS' and 'WORM JUICE' which are great food for your garden. But remember worms are living creatures and need to be well cared for, so pay close attention to them. Make sure you don't feed them anything that makes them sick.

Do not feed your worms :

- Coffee or tea
- Oil or oily foods
- Essential oils or anything aromatic (with strong smells)
- Soaps or chemicals
- Bones or meat
- Citrus or other acidic fruits
- Not too much salt or sugar



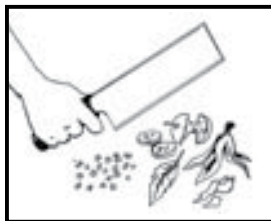
How much do your worms eat ?

About the same amount of food as their own weight.

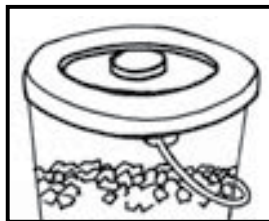
1 kg of worms eats 1 kg of food. You should feed your worms atleast once every 3 days.

HOW TO FEED YOUR WORMS :

Note: If you live in Asia, banana stumps chopped into small pieces are a good alternative to kitchen scraps



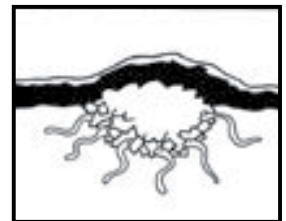
Chop kitchen scraps into small pieces (see list above for foods to avoid)



Store them in a bucket for 2-3 days, add a little water so they ferment easily



Dump fermented scraps into a hole in the worm farm box compost mixture



Cover the scraps with compost (use your hands, not sharp tools)

WORM WARNINGS - Things to Always Check :

Moisture Levels...

Too Wet



Add and turn compost don't let it become compacted or water logged.

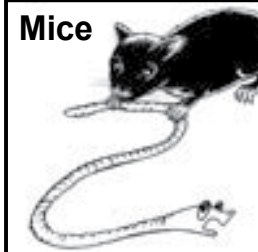
Too Dry



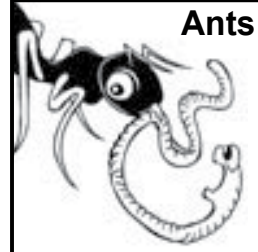
If the compost looks flaky and crumbling, add water from your kitchen scraps.

Worm Eaters!

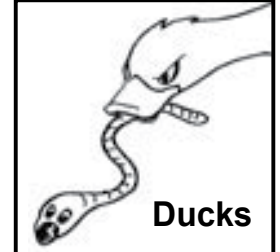
Mice



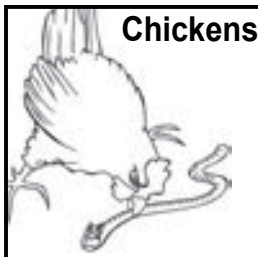
Ants



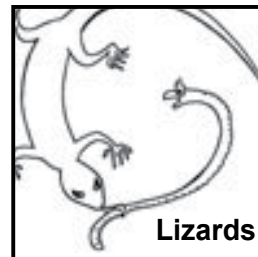
Ducks



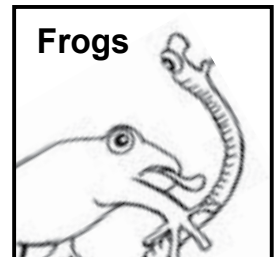
Chickens



Lizards



Frogs



for more info see : www.idepfoundation.org

Wouldn't you rather grow the healthiest, most nutritious varieties of seeds...



For thousands of years farmers have collected and produced their own seeds.

While providing food for their families, gardeners all over the world save seeds from only the healthiest and tastiest varieties.

Working together with the natural processes of the

forest, seed savers around the world have created a vast and diverse catalogue of useful and nutritious plant varieties.

...while saving and making money at the same time?

These days large businesses have begun to produce seed to make a profit on the world market.

These businesses have engineered new, chemically dependant seeds by hybridizing and genetic engineering. Worldwide, local varieties of food crops are disappearing as they are replaced by "engineered" varieties. In the last century three-quarters of all garden varieties have disappeared!



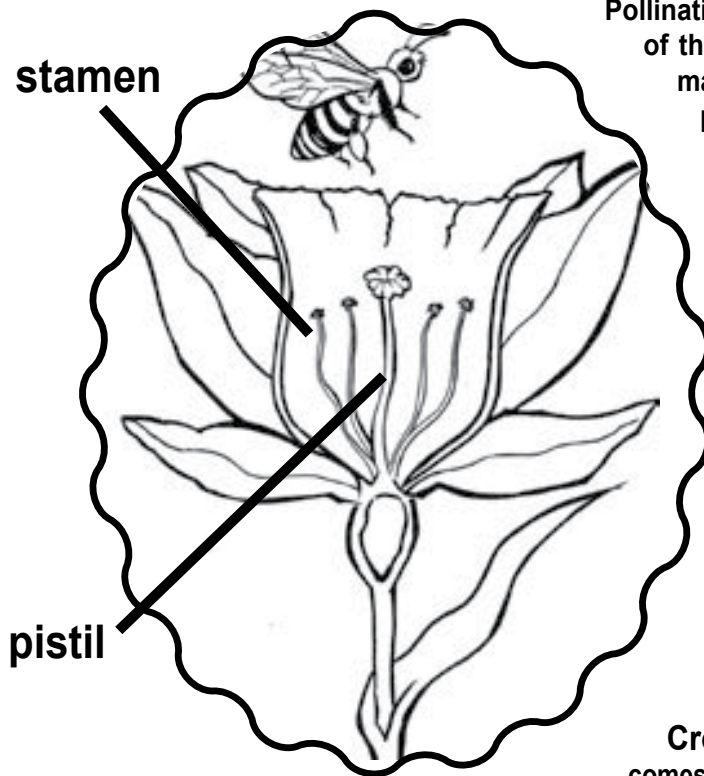
These companies are making huge profits in a business which once belonged to the small farmer while small farms go bankrupt. Why not reclaim it?

**Help protect your community's inheritance.
Grow and save your local plant varieties!**

Many people around the world recognize the need to conserve local and heirloom plant varieties. Start a seed Bank and join the worldwide network of seedsavers TODAY!

Flower Structure & Pollination

First you will need to know a little bit about how plants reproduce...



Pollination happens when pollen from the male parts of the flower (stamen) comes into contact with female parts of the flower (pistil). Once a flower is pollinated it begins to create seed. Depending on the type of plant, pollination can happen in several ways...

Self-pollination - Most vegetable flowers have both male and female parts on the same flower. These species can pollinate themselves.

Insect pollination - For some species, such as squash, insects or birds carry pollen from one flower to another.

Wind pollination - Some species, such as corn, allow the wind to spread their pollen to other flowers.

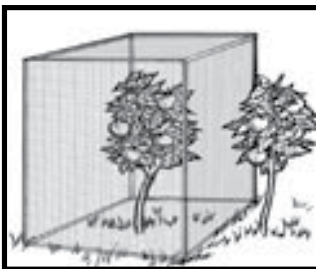
Cross-pollination - When pollen from one plant comes into contact with the pistil of another.

- **Dioecious plants** such as asparagus, have male and female parts on different plants
- **Monoecious plants** such as corn, have male & female parts on the same plant, not on the same flower
- **Perfect Flowers** have both male and female parts and are capable of self-pollination

Caring for your plants...

1

In order to conserve a particular variety it is important to isolate flowers from cross-pollination by other varieties. There are several ways to do this. For example you can : Plant different varieties far enough away from each other that pollen cannot travel from one to the other. The distance needed will depend on how that species' pollen travels and any blockades that it might encounter.



CAGING :

Insect pollinated plants can be caged on alternate days to allow insects access to one variety at a time.



BAGGING :

Flowers of self pollinated plants can be covered with a paper bag or gauze to discourage insects and floating pollen.



BLOCKADES :

Place rows of tall, dense plants in between two species to block the movement of pollen between them.

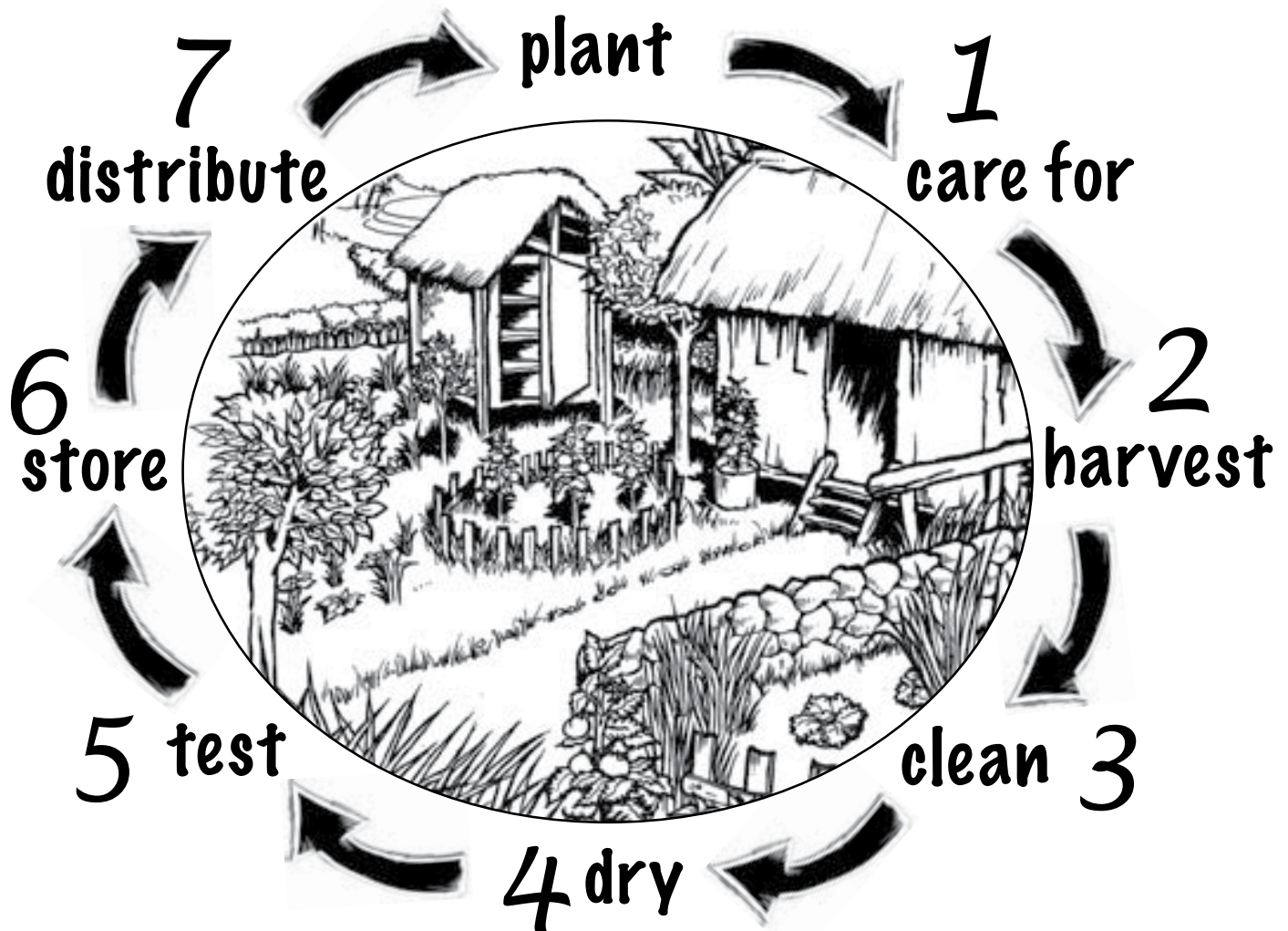


HAND

POLLINATION : Cut the stamen of the male flower & rub it against the stigma of the female.

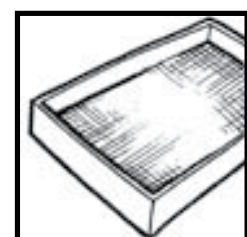
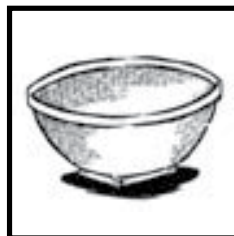
The Seed Saving Cycle

Seed saving is a continuous cycle of activities that follows the natural cycle of plants. When learning seed-saving, nature is the best teacher.



To make a seed saving project more productive we need a few basic tools. These are the things that you will need to get started...

- Cool, Dry Storage Area •
- Dry Work area •
- Water source •
- Buckets or tightly woven baskets •
- Cloth or paper for drying •
- Air-tight containers •
- Desiccant (Silica Gel, Wood Ash) •
- Sieves or screens for winnowing •
- Notebook & pens for record keeping •
- Labels (Bamboo or re-used plastic) •
- Weather-proof markers for labels •



2

Harvesting - four ways to propagate tropical plants

Wet Seed Saving
(like tomato...)



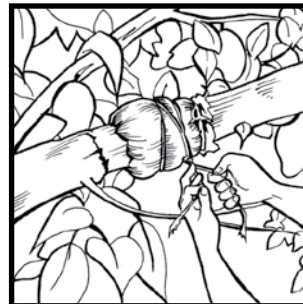
Dry Seed Saving
(like Padi...)



Grafting
(like Mango...)



Rooted cuttings
(like Sawo...)



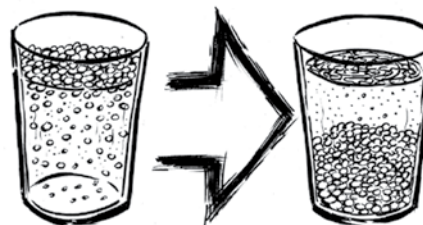
Collecting & 3 Cleaning seeds

Collect only the best seeds from the best plants!

Rogueing - This is the process of removing plants with undesirable characteristics before they pollinate other plants and spread these characteristics. This should be done often to ensure good seed crops.

The best time for seed collecting is mid-morning...

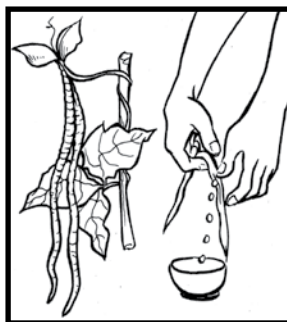
FOR
•
WET
SEEDS



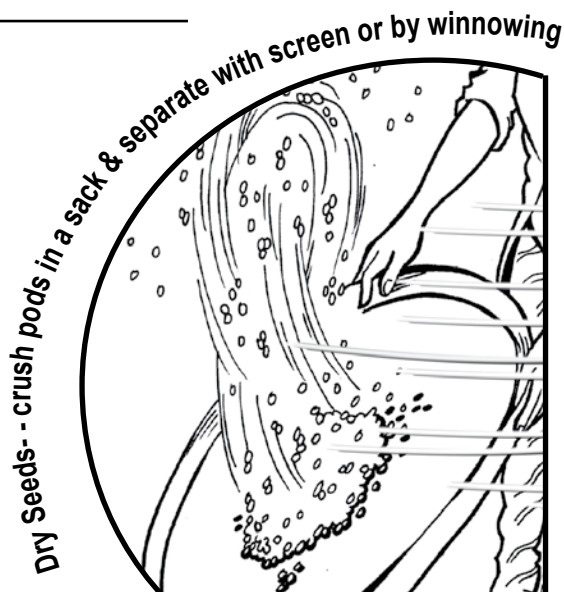
Pick fruit when it is soft & fully ripe (just past eating stage). Scoop seeds out of fruit and onto screen. Run water over seeds to clean them...

Soak in water for 24 hours until fermented

FOR
•
DRY
SEEDS



Hand pick large seeds such as beans. For small seeds such as onions, bag the whole seed cluster and break it off at the stem. Then hang under a roof to dry. Seeds are already bagged for storage. Remember to protect against critters !



4 Drying & 5 Testing seeds



DRYING - Spread seeds out on dry cloth or paper. Air dry in shade for one day then move to bright sunlight. Covering with winnowing screens can help guard against wind and pests! Plants like onions can be hung in paper bags under a roof.

TESTING FOR DRYNESS

Big seeds like beans and corn take 1-2 weeks to dry. To test, bite into one. If your teeth leave an indent it is not dry yet

Medium seeds like pumpkin and chili take about 1 week to dry. Dry seeds will snap when bent

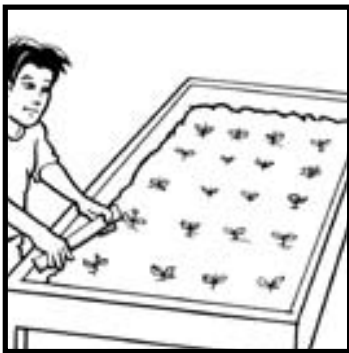
Small seeds like eggplant & lettuce take 2-3 days to dry.

Be very careful to fully dry seed. Moisture will shorten the life span of your seeds drastically!

WARNING ! Some tropical seeds cannot be dried and so must be planted right away!

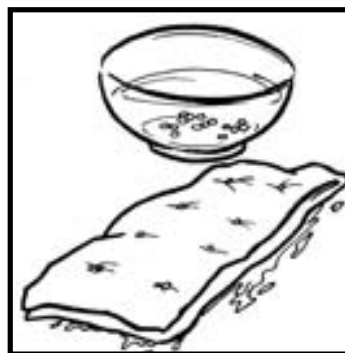
Germination Testing

Test 1 seed for every 10 harvested but no more than 500. Record the number of seeds that germinate & divide by the number that were tested to get a germination percentage. ($75/100 = .75 = 75\%$) Remember to label well!



NURSERY TEST

- Use grated coconut husk as a medium
- Soil can be mixed with coconut if it is sterilized with boiling water
- Water lightly to begin with but keep constantly moist

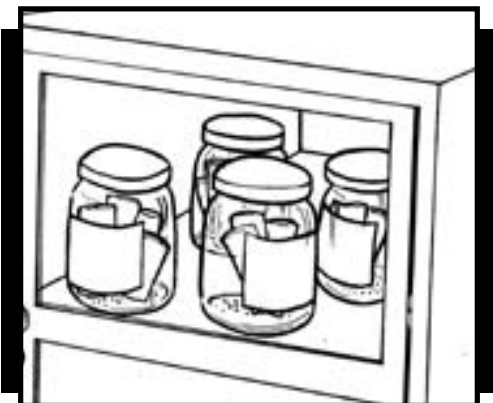


BOWL TEST

For large seeds such as beans or corn

- Soak in water overnight
- Fold seeds in paper & sprinkle with water until damp
- Maintain moisture daily

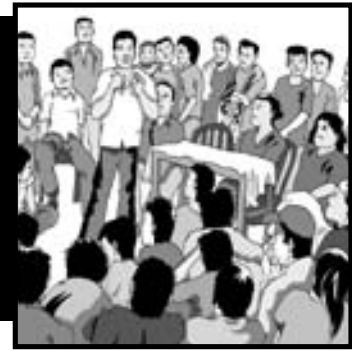
6 Storing seeds in the tropics



Tropical climates cause seeds to rot quickly but if stored well they can last from 2 - 10 years

- Wrap seeds in paper packets
- Place in an air tight container
- A 2cm layer of wood ash at the bottom of the container will soak up excess moisture
- Add neem powder to ash to discourage pests
- Label everything clearly!

7 How to distribute your seeds?



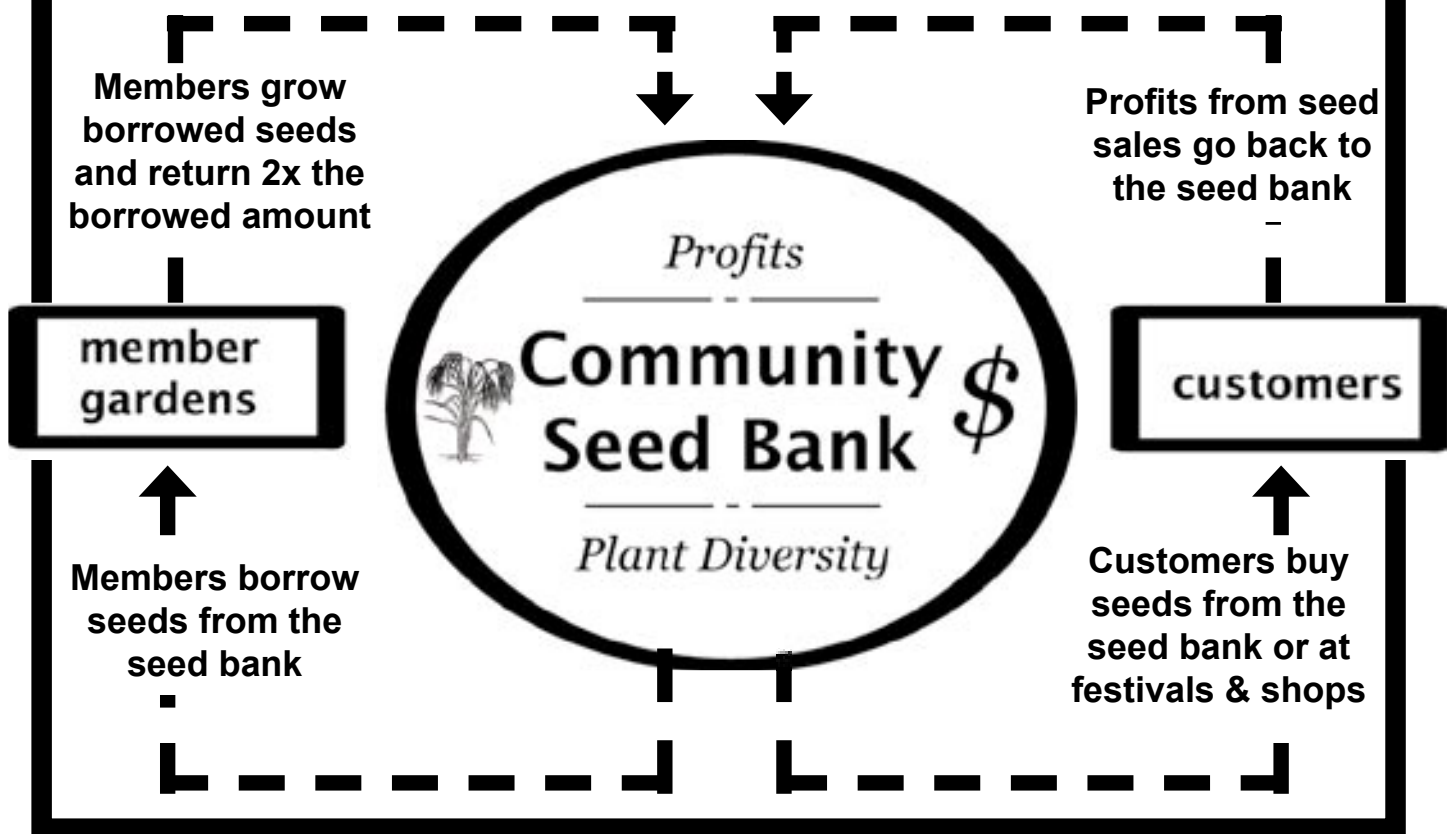
Community seed banks...

The more seed varieties you have in your seed bank the better! Working together with friends and neighbors is a good way share the workload and the increased profits! Community seed banks connect and organize the knowledge, resources and skills of local farmers. Once your seed bank is started you can even connect to nationwide, and worldwide seed saving networks! The first thing to do is to hold a meeting and make a few decisions...

Who are the members?
Where will seed be stored?
Who will keep records?
How will seeds be traded?
Where will excess seed be sold?



Using the seed bank once its started



For a successful seedbank you need to keep accurate records

Local Name	Variety	Description / Uses	Time to harvest	Time in nursery	Disease Resistance	Number of seeds		
						germinate	stored	distributed
Bayam	local	Vegetable	4 weeks	direct seed	Grasshoppers	2700/ 3000	500	2200
Papaya	Carica Papaya (Sunrise Solo)	Fruit, Juice, medicine	1 year	3 weeks	Some fungi	850 / 1000	700	150
Papaya	Carica Papaya (Sunset Solo)	Fruit, Juice, medicine	10 months	3 weeks	Some fungi	770/ 1000	170	600
Timun	Local	Vegetable	60 days	direct seed	leaf-spot	1200/ 1500	1000	200

This seed saving fact sheet was developed by Yayasan IDEP - www.idepfoundation.org
with support from The Seedsavers Network of Australia- www.seedsavers.net

⑥

Seed Saving Checklist

No halaman :

Name of Seed / Plant		Step	Seeds Received			Drying			Tested in nursery			Planted again for propagating					Catalan
			From where	date	qty	time	qty	time	% grows	location	qty	date	qty grows	% grows			
Local name	A																
	B																
	C																
Variety	D																
Family	E																
	F																
	Local name	A															
Variety	B																
	C																
	Variety	D															
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Notes...

WHAT ARE G.M.O. ?

BIOTECHNOLOGY : GENETIC ENGINEERING & GENETICALLY MODIFIED ORGANISMS

• A BRIEF DESCRIPTION OF WHAT GMOS ARE •

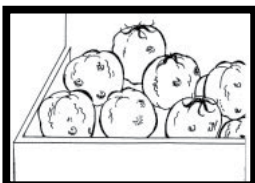
BIOTECHNOLOGY : using plants, animals or microbes, either wholly or in part, to make or modify a product or change an existing species.

GENETIC ENGINEERING (GE) : A modern biotechnological process in which the traits or characteristics of an organism are changed by transferring individual genes from one species to another or modifying genes within a species. **OTHER NAMES FOR THE SAME THING ARE GENETICALLY MODIFIED (GM), GENETICALLY MODIFIED ORGANISM (GMO) OR TRANSGENIC.**

GMO PRODUCTS INCLUDE: Medicines (diagnostic tools & drugs such as insulin), Plants (insect, disease & herbicide resistant plants), Enzymes for food production (cheese), Fuels & Solvents (ethanol).

THIS SERIES OF ARTICLES & FACT SHEETS BY IDEP WILL DEAL ONLY WITH GMO CROP RELATED ISSUES

BEFORE GMO



Tomatoes unable to withstand refrigeration without becoming bruised and unsellable.



Corn Crops were constantly being attacked by insects (pests)

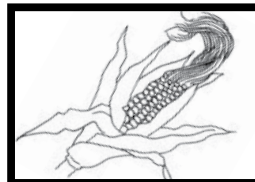


Soy Crops threatened by various types of weeds were damaged by herbicides.

THE GMO PROCESS



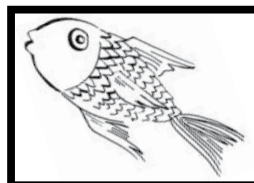
So tomatoes were genetically modified with genes taken from....



So some breeds of corn were genetically modified with genes from....



So soy was genetically modified with genes that were taken from....



A special breed of arctic fish (fish that live in the very cold arctic waters) and a virus.



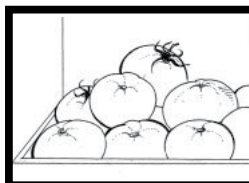
A special kind of bacteria that kills specific pests when they eat it, and a virus.



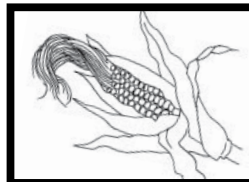
A special kind of bacteria that makes it resistant to specific herbicides, and a virus.



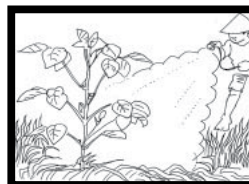
WHAT YOU GET



The new GMO tomatoes could withstand the cool temperatures much longer.



The new GMO corn directly emits its own pesticide into the environment.



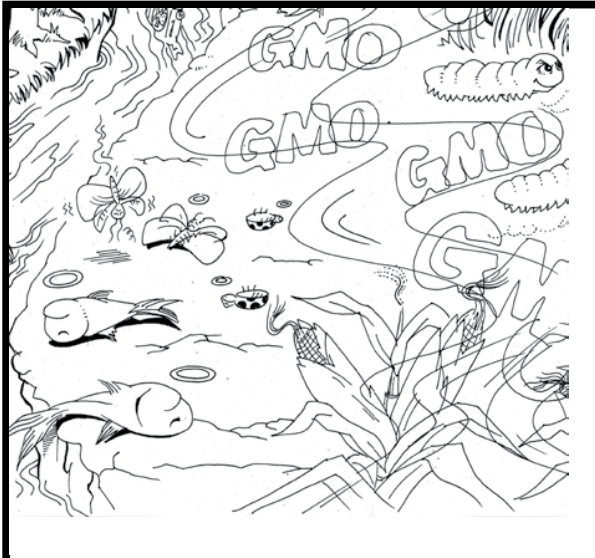
The new GMO soy crops could now be sprayed with these special herbicides.

• THE BASIC PRINCIPLES OF HOW GMOS ARE MADE •

GMOs are made by using molecular biology techniques that permit scientists to identify specific genes, make copies of them, and introduce the gene copies into recipient organisms by using a tool (the most common is a soil bacteria called *Agrobacterium*) that inserts genes into plants. When the recipient plant's cells divide, the new DNA from the other organism (carried by the *Agrobacterium*) is copied and passed on to the new cells. These new genes can affect the plant's offspring by what it can do and even how it looks. There are also some other methods used, such as using the "Gene Gun", or bombardment method.

DO YOU WANT A GENETICALLY MODIFIED FUTURE?

LET'S LOOK AT GMO & THE POSSIBLE RISKS



GMO & ENVIRONMENT

- Genetic pollution
- Negative effects on soil ecology
- Super weeds
- Super pests
- New and more dangerous plant viruses
- Impact on non-target insects & animals
- Loss of Biodiversity
- Negative effects on forest ecology

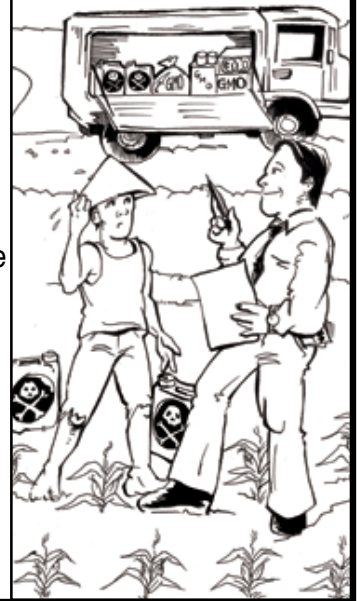


GMO & ECONOMY

- Considered potentially unsafe, some countries are already regulating & refusing GMO products, therefore closing down potential export markets for GMO
- GMO-free products could get a better price on international markets.
- GMO company are monopolising the food production system
- Changing the international market for edible oil products.

GMO & AGRICULTURE

- Lower yields
- Higher input costs
- Increased use of agrochemicals
- Patent contracts
- Loss of local varieties
- Promoting unsustainable monoculture crops
- Loss of Bt (Bacillus thuringiensis) sprays for Organic farmers
- Not enough land to prevent pest resistance



GMO & CONSUMERS

- Toxins & Poisons
- Increased Cancer Risks
- Food Allergies
- Damage to Food Quality & Nutrition
- Antibiotic Resistance
- Increased Pesticide Residues



MADE POSSIBLE THROUGH
SUPPORT FROM :



Bina Desa

COMPILED AND EDITED BY SHINTA SOPHIE & YAYASAN IDEP - RESOURCES:

Biotechnology, GE & GMO – IDEP Article
GMO and Farmer Issues - IDEP Article
GMO and Environmental Issues – IDEP Article
Agriculture Biotechnology, The GMO Debate College of Agriculture & Life Science, Cornell University
<http://www.purefood.org>

GRAPHICS & EDITING BY:
YAYASAN IDEP

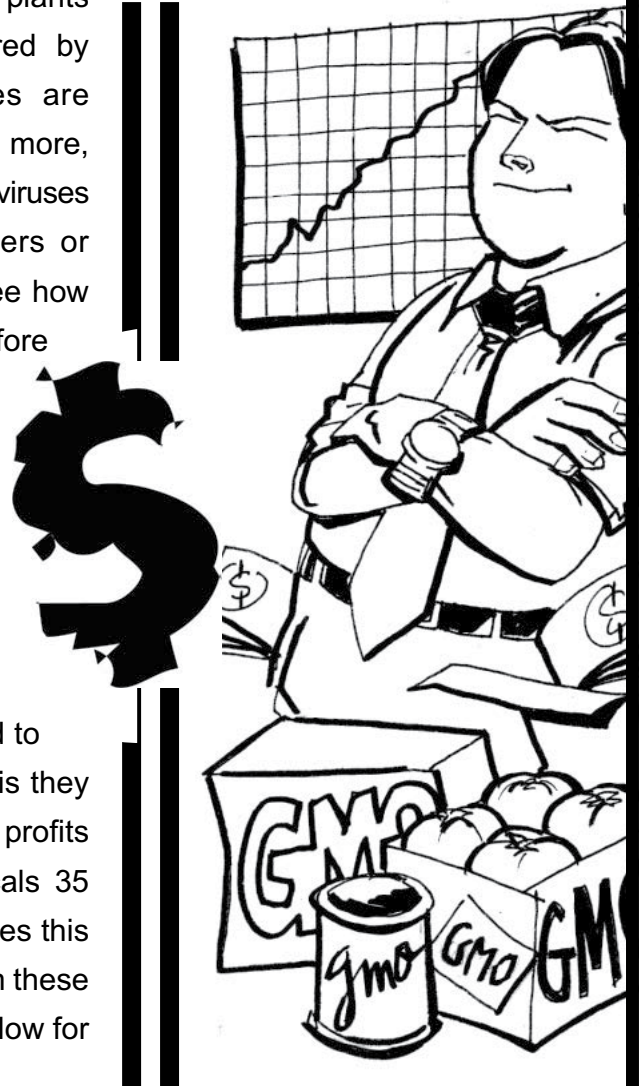


www.idepfoundation.org

For more details, see fact sheets #006, 007, and 011

G.M.O. WHO'S PROFITING?

GMO (Genetically Modified Organisms) Crops are plants grown from seeds that have been genetically altered by foreign multinational companies. These companies are promoting GMO seeds by saying that THEY produce more, better quality produce, can resist herbicides, insect pests, viruses or can have some other beneficial aspect for farmers or consumers who use them. If this were true you can see how we could become dependant on these seeds and therefore the food they produce. The problem is these GMO seeds and products have numerous potential side effects and until now these products have not been sufficiently tested for human health or environmental effects before being commercially available. The companies that are producing the GMO seeds are the same companies that profited greatly from the Green Revolution, by causing farmers around the world to become dependant on their products. The ironic thing is they are using the same slogans of food security and farmer profits to sell these seeds as they did for their agro-chemicals 35 years ago that were proved untrue. For these companies this is business and the sales and the profits they make from these seeds and the agro-chemicals are large. Please see below for more details...



TOP 6 AGROCHEMICAL COMPANIES' SALES IN 2000 :

See sales forecasts on back .



	AGRO-CHEMICALS	GMO
No 1 - SYNGENTA	\$ 5,888,000,000	\$ 958,000,000
No 2 - MONSANTO	\$ 3,605,000,000	\$ 1,608,000,000
No 3 - DuPONT	\$ 2,027,000,000	\$ 1,838,000,000
No 4 - AVENTIS	\$ 3,480,000,000	\$ 247,000,000
No 5 - B.A.S.F.	\$ 3,336,000,000	
No 6 - DOW CHEMICAL Co	\$ 2,086,000,000	\$ 185,000,000

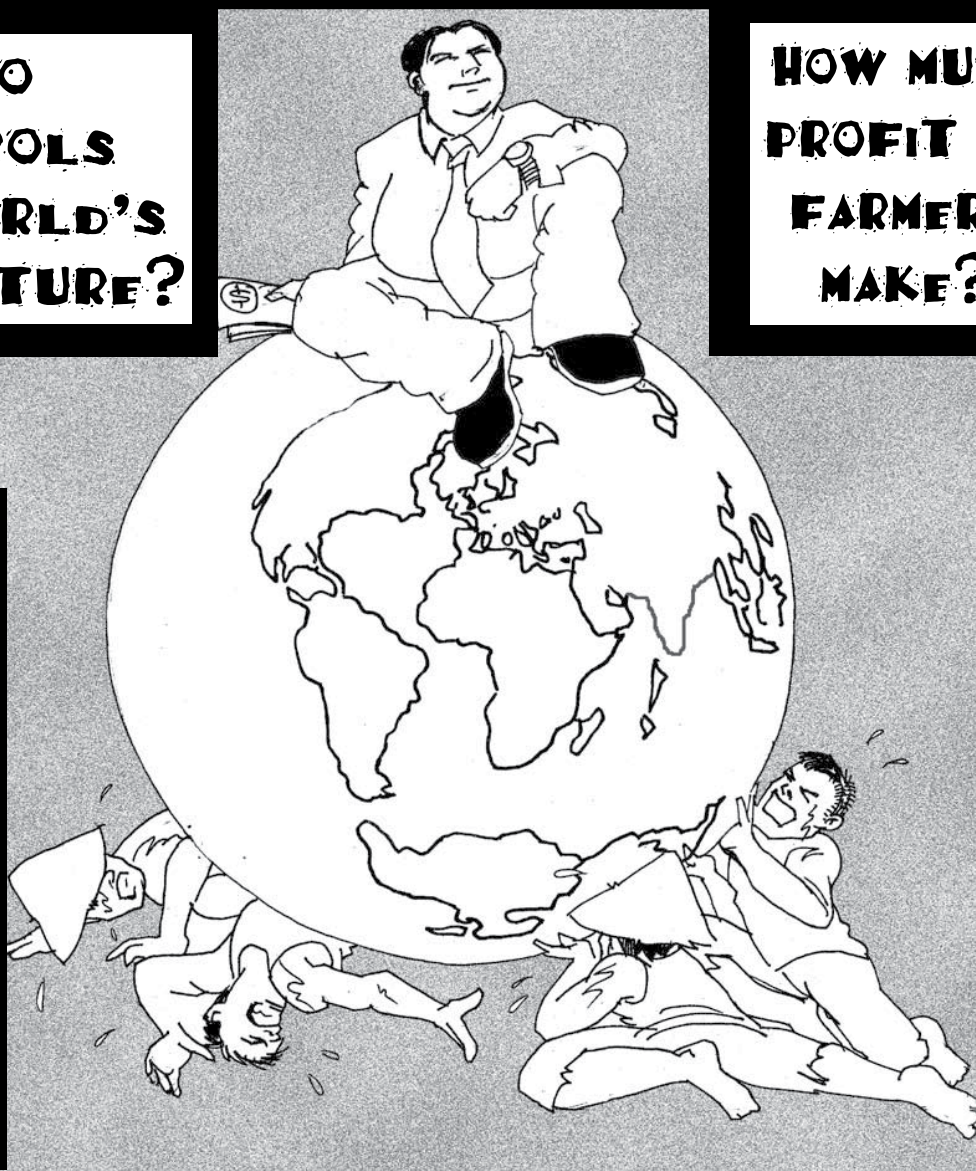
DO YOU WANT A GENETICALLY MODIFIED FUTURE?

OTHER QUESTIONS WORTH CONSIDERING!

**WHO
CONTROLS
THE WORLD'S
AGRICULTURE?**

**HOW MUCH
PROFIT DO
FARMERS
MAKE?**

**?
WHO
IS
GETTING
THE
MOST
BENEFIT
?**



MARKET FORECASTS...

Insecticide sales expected to increase : 0.6% / year

Fungicide sales expected to increase : 1.0% / year

GMO sales expected to increase : 13.8% / year

MADE POSSIBLE THROUGH
SUPPORT FROM :



Bina Desa

COMPILED AND EDITED BY SHINTA SOPHIE & YAYASAN IDEP - RESOURCES:

GMO and Farmer – IDEP Article

<http://www.soyatech.com/bluebook/news/viewarticle.idml?article=20010920-6>

20 September 2001

GRAPHICS & EDITING BY:
YAYASAN IDEP



www.idepfoundation.org

WANTED! G.M.O. IN INDONESIA

GMO RESEARCH IN INDONESIA

There are already many GMO crops being field tested and researched in Indonesia. Most of the research and trials are being undertaken without the general public knowing. Even people close to the trial site who could be affected are not aware that these trials are

taking place.

The reason these crop trials are of concern is that there is the POTENTIAL FOR GENETIC CONTAMINATION from GMO crops to FARMERS' CROPS, with GMO genes modified with bacteria or viruses depending on the type of GMO trial that is taking place.

SOME GMO CROPS PRESENTLY BEING FIELD TESTED



CORN
Insect or Herbicide Resistant
MONSANTO, PIONEER
BALTRIO, ABSP



COTTON
Insect or Herbicide Resistant
MONSANTO



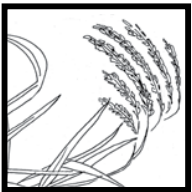
PEANUT
Virus Resistant
BALTRIO, ACIAR



SOYBEAN
Herbicide Resistant
MONSANTO



POTATO
Insect Resistant
BALTRIO, BALAI,
USA



RICE
Insect Resistant
P3B LIPi

GMO CROPS PRESENTLY BEING RESEARCHED



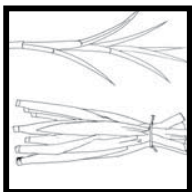
COCOA
Insect Resistant
UPBP



SOYBEAN
Insect Resistant
BALTRIO



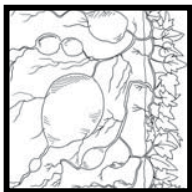
PAPAYA
Virus Resistant
BALTRIO, BALTRAS
& BALTRU



SUGAR CANE
Insect Resistant
P3GI



TOBACCO
Virus Resistant
BALTRAS



SWEET POTATO
Insect or Virus Resistant
BALTRIO &
MONSANTO



CHILLI PEPPER
Virus Resistant
IPB



COFFEE
Disease Resistant
UPBP



TIMBER TREES
Insect Resistant
INDAH KIAT

THE BIG QUESTION IS : SO WHERE ARE THEY? NO ONE SEEMS TO KNOW

SHOULDN'T WE KNOW WHERE THESE TESTING SITES ARE ?

! CASE !

On March 15th, 2001, 40 tons of GM cotton seeds arrived in Makasar (South Sulawesi) from South Africa. They were imported by PT Monagro Kimia, the Indonesian subsidiary of US-based agro-chemical giant, Monsanto.

Local NGO activists tried to block the trucks from leaving the airport because the seed should have been quarantined for detailed examination before distribution. They accused the company of attempting to disguise what they were doing by using trucks marked "rice delivery". The NGOs also protested against the use of the Indonesian military to guard the trucks.

HOW COULD CONTAMINATION AFFECT YOU ?

Loss of local varieties - GMO crops are not sufficiently tested for environmental or human health issues. If after more testing is done there are problems with GMO crops, it will be too late, because the local varieties will have the GMO genes in them and they could have the same problems as the GMO crops.

Loss of markets – export and organic markets are not interested in receiving GMO crops so GMO contamination of your crops will prohibit you from accessing these markets.

WOULD YOU DO GMO TRIALS ON YOUR LAND ?

There is a whole range of potential environmental & human health risks associated with GMO crops and GMO food. Aside from that is the potential contamination of your neighbour's crops if you use GMO.

TO PROTECT YOURSELF & EVERYONE IN YOUR AREA AGAINST CONTAMINATION

- Make sure that you are planting local seeds
- Tell your neighbours about the potential risks of planting GMO crops so they will want to do the same
- Work together with others in your area to find out if GMO crop trials are happening in your area.



MADE POSSIBLE THROUGH
SUPPORT FROM :



COMPILED AND EDITED BY SHINTA SOPHIE & YAYASAN IDEP
RESOURCES:

www.isaaa.org
Herman (2000), Mulyoprawiro, 2000, Slamet-Loedin, 2000
"Down to Earth" 49, May 2001

GRAPHICS & EDITING BY:
YAYASAN IDEP



www.idepfoundation.org

Jln Saleh Abud No 18-19, Otto Iskandardinata Tel. +62 (21) 819 9749 Fax. +62 (21) 850 0052 binadesa@indo.net.id

G.M.O. CONSUMER ISSUES...

GMO FOODS = FOODS THAT ARE MADE FROM GMO CROPS



WHAT KIND OF FOODS CONTAIN GMO INGREDIENTS?

In the US, there are indications that 60-75% of all non-organic supermarket foods "test positive" for GMO ingredients. In general, fresh food or processed food products containing soybeans, corn or canola, are products that MAY contain GMO ingredients. Other possible items include papaya, tomatoes, potatoes, squash & sugar beets.

IN INDONESIA, these products were tested & found to contain GMO ingredients: Isomil Soy Infant Formula, Indofood Soysauce, ABC Soysauce, Bango Soysauce, Pringles Potato Chips, & Simba Corn Flakes.

POSSIBLE RISKS OF CONSUMING GMO FOODS...

TOXINS & POISONS

Genetically engineered products clearly have the potential to be toxic and a threat to human health. In 1989 a GMO brand of a dietary supplement, killed 37 Americans and injured more than 5,000 others who already had a pre-existing illness before taking the supplement. Also, In 1999, Dr. Arpad Pusztai's research found that GMO potatoes, spliced with DNA from the snowdrop plant and the Cauliflower Mosaic Virus, a commonly used viral promoter in making GMO plants, are poisonous to mammals.

CANCER RISKS

In the US Monsanto is selling GMO recombinant Bovine Growth Hormone (rBGH), which is injected into dairy cows so they produce more milk. The milk & dairy products of injected cows could pose the possibility of human breast, prostate, and colon cancer. A number of studies have shown that humans with elevated levels of a by-product of this hormone in their bodies are much more likely to get cancer.

FOOD ALLERGIES

Eating foreign proteins spliced into GMO food products may harm people with food allergies. Stringent pre-market safety testing is necessary to protect public health. Mandatory labelling is also necessary so that those suffering from food allergies can avoid GMO foods and public health officials can trace allergens back to their source if GMO food allergies occur.

SEE BACKSIDE FOR OTHER POSSIBLE RISKS...



DO YOU WANT A GENETICALLY MODIFIED FUTURE?

OTHER CONCERNS WORTH CONSIDERING!



FOOD QUALITY

Concentrations of beneficial compounds thought to protect against heart disease and cancer were lower in genetically modified soybeans than in traditional strains. These and other studies, including Dr. Pusztai's, indicate that genetically engineering food is likely to result in foods lower in quality & nutrition.

ANTIBIOTIC RESISTANCE

When GMO's are made; they often link it to another gene, called an antibiotic resistance marker gene that helps determine if the genes were successfully spliced into the host organism. Some researchers warn that these genes might unexpectedly recombine with disease-causing bacteria or microbes in the environment or in the guts of animals or people who eat GMO food which, could contribute to the public health danger of antibiotic resistance. If infections cannot be cured with traditional antibiotics, this will lead to development of even stronger cures for infections.

PESTICIDE RESIDUES

The leaders in biotechnology are the same giant chemical companies that sell toxic pesticides. These companies are genetically engineering plants to be resistant to herbicides that they manufacture so they can sell more herbicides to farmers who, in turn, apply stronger herbicides to crops to kill weeds.



SO WHAT CAN YOU DO ABOUT IT ???

AS THE ANTI-GMO CAMPAIGNS IN EUROPE HAVE SHOWN, MASS GRASSROOTS ACTION IS KEY TO STOPPING GMO AND MOVING AGRICULTURE IN A SUSTAINABLE DIRECTION...

#1 Keep informed on GMO issues by visiting the websites listed below & working with local NGO's.

#2 In cities ask your grocery store manager for a written statement on their policy regarding GMO foods. Request that they identify which food products are GMO & which are not, and then label them as GMO or GMO free.

#3 Buy your foods from farmers you know & trust are not using GMO crops

#4 Organize public education forums, & news-making events in your local community about GMO Crops & Food

#5 Communicate with your elected public officials, political candidates & regulatory agencies. Ask them to...

- Ban GMO products.
- Enforce labelling of all GMO food & fibre products
- Enforce strict pre-market safety testing of all GMO products
- Enforce GMO corporations & labs to be liable and subscribe to long-term liability insurance.



MADE POSSIBLE THROUGH
SUPPORT FROM :



COMPILED AND EDITED BY SHINTA SOPHIE & YAYASAN IDEP - RESOURCES:

<http://www.greenpeaceusa.org/ge/>

<http://www.purefood.org>

Ditemukan, Produk Makanan Mengandung Bahan Transgenik,
Kompas 8, Februari 2002.

GRAPHICS & EDITING BY:
YAYASAN IDEP

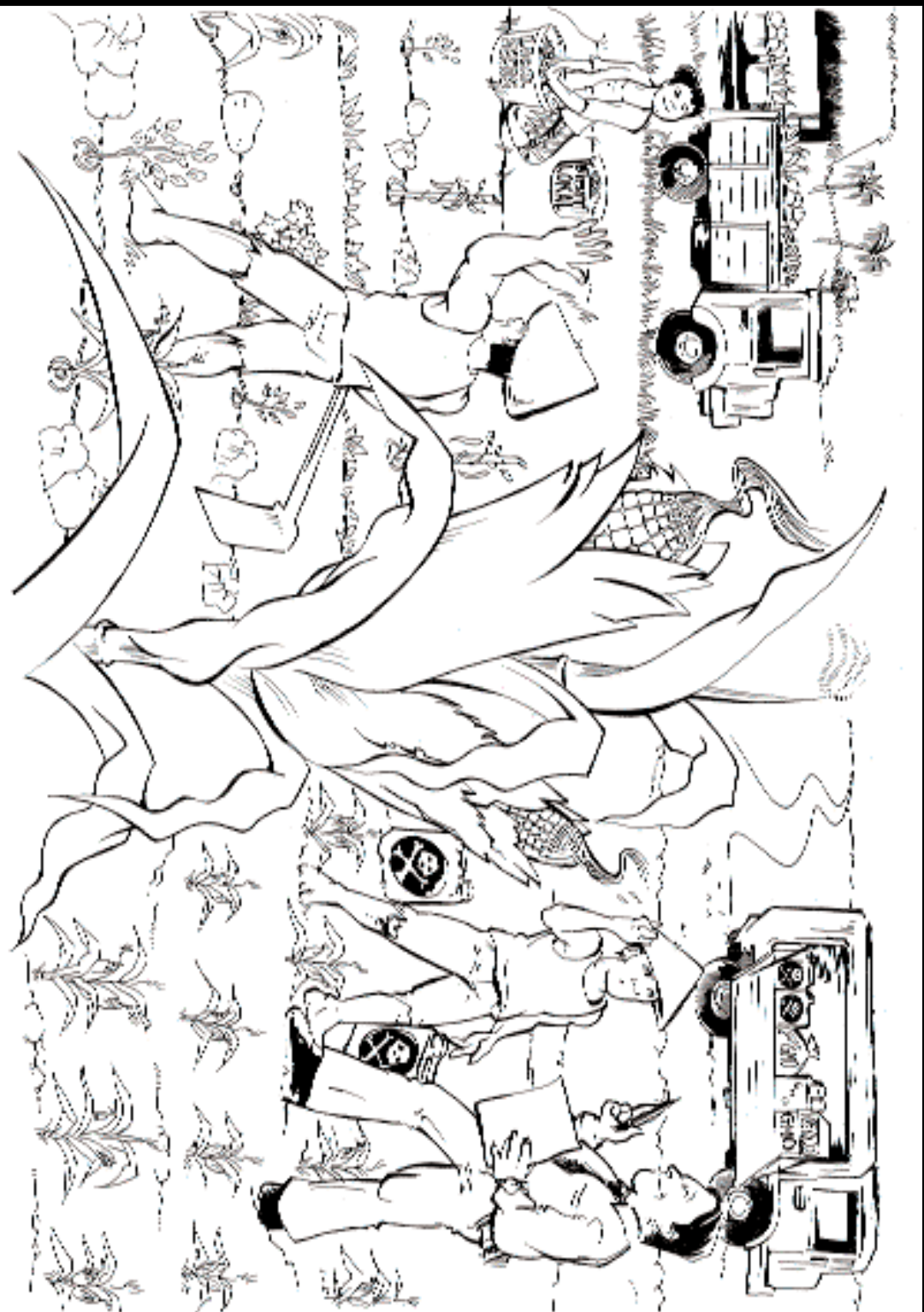


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G.M.O.'s & FARMERS

CONSIDER THIS!

WHEN YOU ARE CONSIDERING YOUR FARMING OPTIONS...



#1 LOWER YIELDS

Studies show that GMO crops can actually get lower yields.

#2 HIGHER INPUT COSTS

GMO seeds cost a lot more money and require other inputs as well.

#3 INCREASE AGROCHEMICALS USE

Studies show agrochemical use can increase when growing GMO crops.

#4 PATENT CONTRACTS

GMO companies make you sign a contract controlling your options.

#5 LOSS OF LOCAL VARIETIES

As with hybrids, wide scale use of GMO seeds can cause the loss of local varieties & reducing biodiversity.

#6 UNSUSTAINABLE MONOCULTURE

Growing GMO crops promotes unsustainable monoculture.

#7 LOSS OF ORGANIC BT SPRAYS

In the world organic farmers use non-toxic Bt (Bacillus thuringiensis) sprays.

#8 COMPLICATED MANAGEMENT

With GMO crops you need to use complicated resistance management strategies.

(SEE BACKSIDE FOR MORE DETAILS)

DO YOU WANT A GENETICALLY MODIFIED FUTURE? DOES YOUR FARM?

FS.GMO#007.eng.GMO & farmers - FOR MORE INFORMATION CONTACT : GMOindo@dps.centrin.net.id

SOME OF THE POSSIBLE EFFECTS THAT GMO CROPS CAN HAVE FOR FARMERS

#2

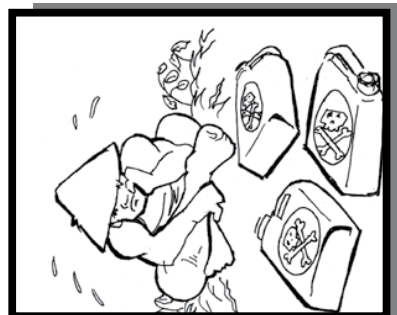
HIGHER INPUT COSTS



#1

LOWER YIELDS

There are documented studies that show that yields of GMO crops are not what was promised by the companies and certain crop yields are actually lower than conventional varieties.



#3

INCREASED AGROCHEMICALS

The major form of GMO crops (herbicide tolerant) are designed so that farmers will spray more herbicides on their crops. There are also cases where insect resistant GMO crops (Bt Crops) actually have higher insecticide use.

#4

PATENT CONTRACTS



#5

LOSS OF

LOCAL VARIETIES

As this was the case with high adoption of Hybrid seed varieties. GMO seeds could lead to the loss of local varieties. Farmers will no longer continue to save local varieties and because GMO crops may contaminate the local varieties that remain.



#6

UNSUSTAINABLE MONOCULTURE



The wide spread use of GMO seeds will lead to a monoculture system of agriculture which through out history has proven unsustainable and very risky both financially because the farmers are dependant on the price at harvest time and ecologically because of pest and disease outbreaks.

#7

LOSS OF THE ABILITY TO USE BT SPRAYS FOR ORGANIC FARMERS

One of the few organic options for spraying insect & pests is the use of Bt. GMO crops. Using Bt. Genes are going to cause resistance to Bt. and leave organic farmers without that option.

#8

COMPLICATED MANAGEMENT

To prevent resistance from insect pests, Bt. Crops should use a refuge strategy which means that at least 25% of the farmers land should be grown with conventional varieties and therefore making management much more difficult.

MADE POSSIBLE THROUGH
SUPPORT FROM :



COMPILED AND EDITED BY SHINTA SOPHIE & YAYASAN IDEP - RESOURCES :

GMO & Farmers Issues – IDEP GMO article

<http://www.panna.org/>

GRAPHICS & EDITING BY:
YAYASAN IDEP



www.idepfoundation.org

G.M.O. & CHEMICALS

IS IT TRUE THAT WE NEED LESS CHEMICALS WITH GMO?

HOW CAN WE TRUST BUSINESSES THAT SAY...

"Bt. (Bacillus thuringiensis) crops that prevent certain types of caterpillars from eating the plants is the second most widely used GMO technology in the world. It decreases insecticide use, reduces insecticide costs and increases yields for farmers that adopt the technology."

However there hasn't been any significant decrease in insecticide use. In fact in 1999 over a quarter of the cotton growing areas using Bt. Cotton in the US dramatically increased their insecticide use due to a need to eradicate a non-target pest. If standard pesticides or more sustainable farming practices were being used this may not have been necessary. (See graph for more details).

THEY TOLD US THAT...



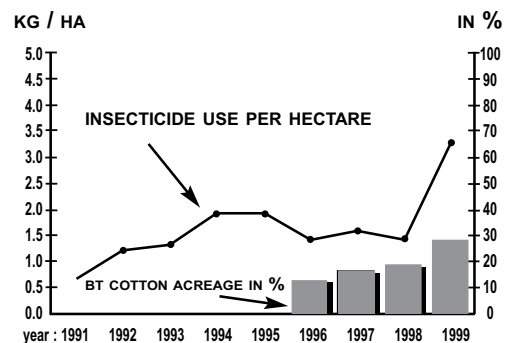
The most widely used GMO crops on the world market today are herbicide resistant crops. There are many types of GMO crops commercially grown that have this trait.

The same companies that sell these GMO seeds, own the patent on these seeds. They also sell the specific herbicide that the crops are resistant to, and they own the patent on that as well.

They say the main reason for using herbicide tolerant cotton is to improve weed control & the overall convenience of using the herbicide tolerant system they offer.

However, it seems that there has been no significant decrease in overall herbicide use since the introduction of herbicide tolerant cotton (see graph on right for more details). In fact per acre herbicide use has increased but steadily from 0.81 lbs/acre to 1.06 lbs/acre since the introduction of herbicide resistant cotton.

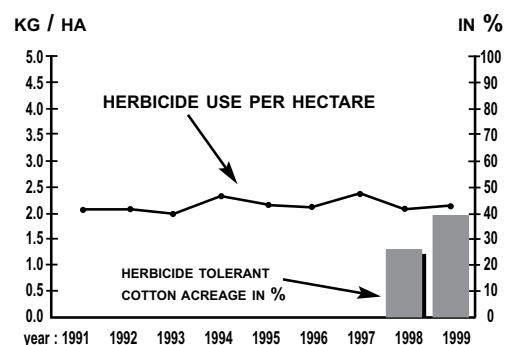
BT-COTTON ACREAGE & INSECTICIDE USE



SO WHAT HAPPENED ?



HERBICIDE TOLERANT COTTON ACREAGE & HERBICIDE USE



DO YOU WANT A GENETICALLY MODIFIED FUTURE?

SOME GM PRODUCTS ON WORLD MARKET ARE:

THEY MAY BE SOLD OUTSIDE OF THE U.S. WITH DIFFERENT NAMES!

MONSANTO

MONSANTO



Bollgard® Insect-Protected Cotton
NewLeaf® Insect-Protected Potato
Roundup Ready® Herbicide resistant Soybeans, Cotton & Corn
YieldGard™ Insect-Protected Corn
Bollgard with BXN Cotton (Produced by Calgene, LLC, unit of Monsanto)

NOVARTIS

NOVARTIS

AVENTIS



NK Knockout™ Corn
NK YieldGard™ Hybrid Corn
Attribute™ B.t. Sweet corn
Novartis Seeds Roundup Ready® Soybeans

LibertyLink® Herbicide resistant Corn
LibertyLink® Herbicide resistant Canola
StarLink (Bt.) Corn

AMERICAN CYANAMID

BASF

MYCOGEN



CLEARFIELD™ herbicide resistant Corn
SMART® Canola Seed

NatureGard® Hybrid Seed Corn
IMI-Herbicide tolerant Corn

DEKALB GENETICS CORP.



GARST SEED COMPANY

Garst

DeKalBt™ Insect-Protected Hybrid Corn
DeKalb Brand Roundup Ready® Corn
DeKalb GR Hybrid Corn

High pH Tolerant Corn Hybrids
Gray Leaf Spot Resistant Corn Hybrids
G-Stac™ Corn Hybrids

DNAP HOLDING CORPORATION



FreshWorld Farms® Tomato, cherry tomato & sweet mini-peppers
FreshWorld Farms Endless Summer® Tomato

**MOST OF THESE PRODUCTS ARE NOT YET
BEING SOLD IN INDONESIA - WHICH ONES ARE?**

MADE POSSIBLE THROUGH
SUPPORT FROM :



COMPILED AND EDITED BY SHINTA SOPHIE & YAYASAN IDEP - RESOURCES:

BIO Member Survey (www.bio.com)
"No reduction of pesticide use with Genetically Engineered Cotton"
WWF International 2000

"Do GM crops mean less pesticide use?" Charles Be'nbrooke, The Royal Society of Chemistry 2001

GRAPHICS & EDITING BY:
YAYASAN IDEP



www.idepfoundation.org

LET'S COMPARE AGRICULTURAL SYSTEMS

AGRICULTURAL SYSTEMS

TRADITIONAL

Agricultural practices that would have been used in villages 50 years ago, based on many years of development with very little outside influence. All agricultural inputs would have been from the local area.

GREEN REVOLUTION

Conventional, high external input agriculture that arrived in Indonesia in the late 1960's and 1970's. This agriculture system uses hybrid seeds, chemical fertilizers, & chemical pesticides, which need to be purchased.

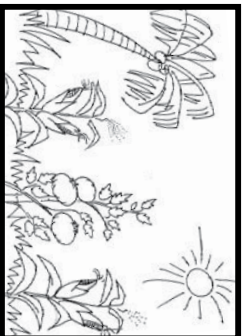
SUSTAINABLE

The agricultural system that is based on a "back to nature" approach to farming. It involves less reliance on seed and chemical companies for agriculture production, traditional systems and other innovative ideas.

BIOTECHNOLOGICAL

The agricultural system that uses genetically engineered or modified seeds that have been developed and imported by large multinational corporations as part of their agricultural system.

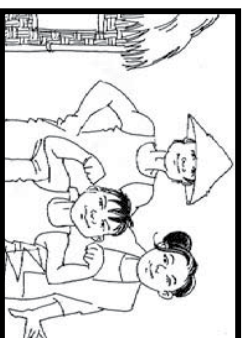
FROM AN
ENVIRONMENTAL
PERSPECTIVE



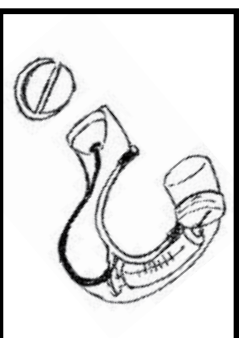
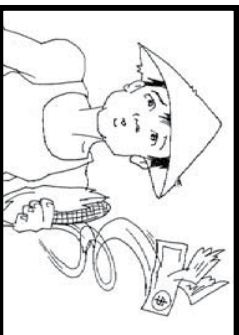
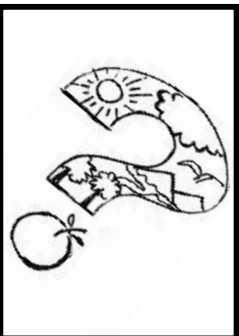
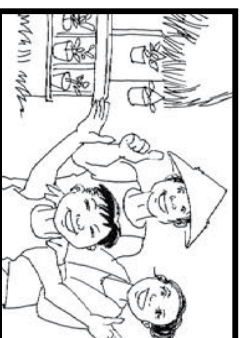
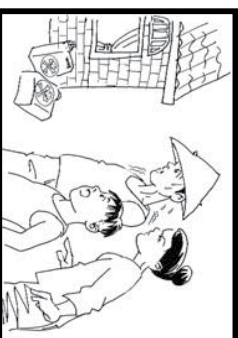
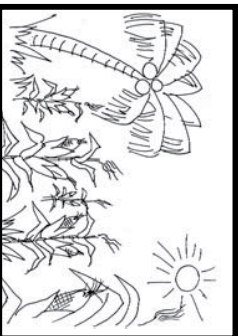
FROM A
FARMER'S
PERSPECTIVE



FROM A
HEALTH
PERSPECTIVE



FROM THE
CORPORATIONS'
PERSPECTIVE



WHICH ONE WOULD YOU CHOOSE FOR YOUR FARM & FUTURE?

FS.GMO#009.Let's compare agricultural systems - FOR MORE INFORMATION CONTACT : GMOindo@dps.centrin.net.id

10 REASONS THEY WON'T:

#6 INCREASING DESTITUTION.
Displacing "inefficient" small farmers is likely to increase famine and malnutrition not reduce hunger.

#7 UNSUSTAINABLE AGRICULTURE.
GMO seeds in agriculture are likely to have adverse environmental impacts, which will undermine the ecological basis of food production. Growing monoculture is also very high risk economically as monoculture is more susceptible to pest attack and market fluctuations than multiple-plant cropping is.

#8 LOWER YIELDS.
GMO crops do not have significantly increased yields. In some cases, yields are lower than those for conventional varieties of the same crop.

#9 INCREASED CORPORATE CONTROL.
GMO companies gain near-monopoly control over the growing and marketing of some agricultural commodities.

#10 MISREADING THE PROBLEM.
Underlying the claim that GE foods are needed to feed the world lies a fundamentally flawed analysis of the causes of world hunger.



#1 FEED, Not Food.

The two main GMO crops grown commercially in the world – soybeans and corn - are mostly used to feed livestock, not people.

#2 ENGINEERING FOR CONVENIENCE.

Research in GMO food has been for the commercial interests of food processors rather than nutritional needs.

#3 SUBSTITUTING TROPICAL CASH CROPS.

GMO is creating substitutes for tropical cash crops which will lead to poorer and hungrier farmers in the developing world.

#4 INCREASING FARM DEBT.

GMO seeds cost a lot more and also require other external inputs, which will lead to poorer and hungrier farmers.

#5 PROMOTING UNFAIR FARMING.

GMO promoters say that farm bankruptcies are a regrettable but necessary price of greater efficiency in agriculture. This leaves farmers without a livelihood.

MADE POSSIBLE THROUGH
SUPPORT FROM :

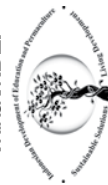


Bina Desa

COMPILED AND EDITED BY SHINTA SOPHIE & YAYASAN IDEP - RESOURCES:

Ten Reasons Why GE Foods Will Not Feed the World,
prepared by The CornerHouse, UK

GRAPHICS & EDITING BY:
YAYASAN IDEP







www.idepfoundation.org

G.M.O. ASK YOURSELF

WHAT'S THE BEST CHOICE FOR YOUR FARM & FUTURE?

• INFO ABOUT DOING THIS EXERCISE •

To do this activity, show your group the FS.GMO#009.eng.Let's Compare Agricultural System. In a group of any size work your way down the list comparing the systems of Agriculture. The group discussion is more important than the actual answers. This exercise can go quickly or slowly depending on the time available & how much time you want to allow for discussion.

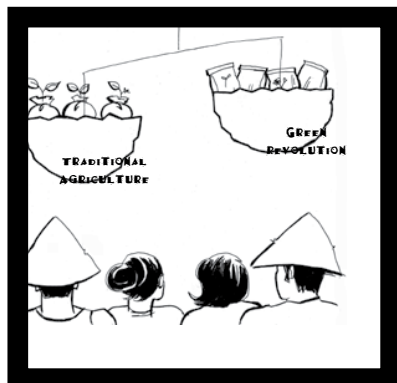
	 ASPECTS OF AGRICULTURAL SYSTEMS Including things farmers pay or receive money for and non-monetary items, which are not counted by using money.	TRADITIONAL PRACTICES	GREEN REVOLUTION	SUSTAINABLE AGRICULTURE	BIOTECHNOLOGY SYSTEMS	CHOOSE 1 SYMBOL FOR EACH BOX  POSITIVE FOR FARMERS  NEGATIVE FOR FARMERS  NO CHANGE FOR FARMERS
						QUESTIONS TO ASK...
1	SEEDS					Cost? Available in your village? Can you grow it? More/less labour?
2	FERTILIZER					Cost? Available in your village? Can you make it? More/less labour? Affects on your soil?
3	PESTICIDE					Cost? Available in your village? Can you make it? More/less labour? Do people using it get sick?
4	PLANTING					Who does it? Cost? More/less labour? Best results from planting system?
5	WEEDING					Who does it? Cost? More/less labour? Best results from weeding system?
6	HARVESTING					Who does it? Cost? More/less labour? Best results from harvesting system?
7	YIELD					Do you get more or less yield? Is product better or worse quality?
8	MARKETING					Is the crop sold more easily? Do more or less people want to buy or use your crop?
9	SELLING PRICE					Is the price you sell your crop for higher?
10	FOOD AT HOME					More or less food at home? Is it produced on your farm? How easy is it to store?
11	EXPORT					What is the export potential? Are other countries interested in buying the crop?
12	CULTURAL					Has this system had an impact on the local Culture? Ceremonies, gifts, local food etc?
13	BIODIVERSITY (CROP TYPES)					Are there more or less species of crops? Are more or less varieties of each type of crop grown?
14	SOCIAL					How systems change social practices (labour, how people work together etc) in your village.
15	WATER QUALITY					Do the streams have more or less insects, fish, frogs etc? Is the water more clear / clean?
16	SOIL QUALITY					Does the soil have more or less living things in it? Is the land harder or difficult to dig?
17	BENEFICIAL INSECTS					Are there more or less beneficial species (spiders, ladybugs) in the system?
18	OTHER INSECTS + MAMMALS					Do you have more/less rat problems? Are there more/less animals in and around your fields?
19	RISK					What happens if price of the crop decreases? What happens if pests destroy your crop?
20	LEGAL ISSUES					Are there more/less legal documents in this system? Land contracts, seed contracts etc.

DO YOU WANT A GENETICALLY MODIFIED FUTURE?

SOME IDEAS FOR USING THIS EXERCISE...

FACILITATOR PREPARATION :

For this exercise it is important to have a knowledgeable facilitator. The facilitator will have to already understand the 4 basic forms of agricultural systems or else take some time to learn about the basic issues surrounding them. The GMO awareness series will help with background fact sheets and articles on Biotech agriculture.



THE GROUP DISCUSSION :

Start by comparing Traditional agriculture with Green Revolution agriculture. Ask the questions listed, plus any other related questions on the topic. Any specific topic may include some things that are better or worse. Allow a few minutes of group discussion for each and then put the issue to a vote.

VOTE & FILL IN THE CHART :

Let the group decide which symbol to put for Green Revolution system issues. Put an up arrow in the box if the participants feel that that activity is better for the farmers. Put a down arrow if they feel it is worse. Put a dash if there is no change or difference between the systems and its effects on farmers.



GROUP DISCUSSION & SYSTEM SUMMARY :

Spend a few minutes after each comparison to summarise the pros and cons of each of the agriculture systems discussed. Then compare the Green Revolutions system to a Sustainable Agriculture system and follow the same instructions as above. Put the votes in to the appropriate boxes. Continue this until you finish comparing Biotechnology Agriculture to Sustainable Agriculture.

FOLLOW UP TO THIS EXERCISE :

After that you can engage in a discussion on which system is preferable and what methods can be used to achieve it. This would be a good time for the groups to make some action plans for further training and discuss how to facilitate that training. For example, where to find the resource people for Sustainable Agriculture training.



MADE POSSIBLE THROUGH
SUPPORT FROM :



CREATED BY RUSS CULLINANE & YAYASAN IDEP

GRAPHICS & EDITING BY:
YAYASAN IDEP



www.idepfoundation.org

#1 GENETIC POLLUTION
Genes from GMO plants can breed with non-GMO plants, contaminating local varieties.

#2 NEGATIVE EFFECTS TO SOIL
GMO plants could negatively impact the soil ecology of the land they grow in.

#3 SUPER WEEDS
Weeds could develop herbicide resistant traits causing the need for more toxic chemicals.

#4 SUPER PESTS
Pests will most likely develop resistance to the insecticidal proteins of GMO crops.

#5 PLANT VIRUSES
Viruses often mutate and GMO crops resistant to viruses could speed up this process.

#6 INSECT & ANIMALS IMPACTS
Non-target insect and animal species may also be affected by GMO Bt (*Bacillus thuringiensis*) Crops.

#7 LOSS OF BIODIVERSITY
How are GMO crops going to interact with existing species on the planet?

#8 FOREST ECOLOGY IMPACTS
Faster growing GMO species have the potential to out compete native plant for sunlight, nutrients and water.

(SEE BACKSIDE FOR MORE DETAILS)

G.M.O. & THE ENVIRONMENT

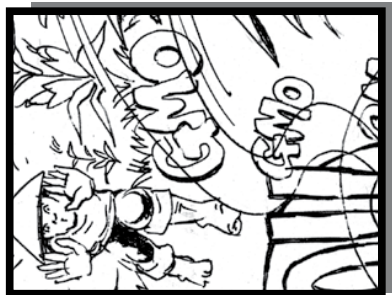
YOUR NATURAL ENVIRONMENT COULD LOOK LIKE THIS...



DO YOU WANT A GENETICALLY MODIFIED FUTURE?

F.S.GMO#011.eng.GMO & environment - FOR MORE INFORMATION CONTACT : GMOindo@dps.centrin.net.id

POSSIBLE EFFECTS THAT GMO CROPS CAN HAVE ON THE ENVIRONMENT



#2

NEGATIVE EFFECTS TO SOIL

Research has shown that GMO Bt. crops can effect beneficial soil microorganisms. GMO crops could transfer genes to local soil microorganisms and this may affect both soil ecology and fertility.

#1

GENETIC POLLUTION

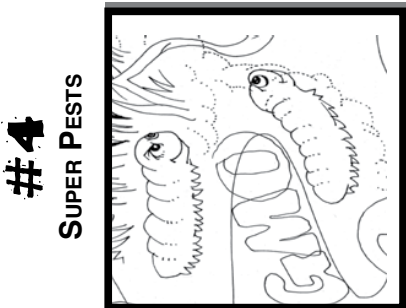
Wind, rain, birds, bees and insect pollinators have begun carrying genetically-altered pollen into adjoining fields, polluting the DNA of crops of organic and non-GE farmers.



#3

SUPER WEEDS

Herbicide resistant GMO crops have the potential to cross-pollinate genes with related weed species in the area. These weeds could then become herbicide resistant, which would then require stronger, more toxic chemicals to control them.



#4

SUPER PESTS

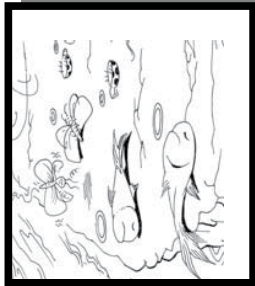
Because of their short life cycles, insect pests are known to gain resistances to specific pesticides in a very short period of time. Will this be the case with GMO crops that produce insecticidal proteins such as Bt. Crops?



#5

PLANT VIRUSES

Studies are indicating that GMO plants that resist viruses can cause the viruses to mutate into new, more virulent forms. This has the potential to cause even further damage if the virus strains continue to mutate, making plant diseases more difficult to control & treat.



#6

INSECT & ANIMALS IMPACTS

Studies are starting to show that GMO Bt. crops are adversely affecting a number of beneficial insects including ladybugs, lacewings, bees and possibly birds. There is also a controversial report that GMO crops have effects on certain butterfly populations.

#7

LOSS OF BIODIVERSITY

It's unclear how GMO plants will interact with existing species on the planet. Without proper testing, local and global biodiversity could be in danger. Genetic contamination of related species is a definite possibility. There could be many as yet unknown interactions between species that may cause a major concern.

#8

FOREST ECOLOGY IMPACTS

GMO trees are designed to grow very quickly. Because of this they have the potential to compete with local tree varieties for nutrients, water and sunlight, completely changing the ecology of the forests in which they grow.



MADE POSSIBLE THROUGH
SUPPORT FROM :



Bina Dosa

COMPILED AND EDITED BY SHINTA SOPHIE & YAYASAN IDEP - RESOURCES:

GMO and Environmental Issues - IDEP GMO Article

<http://www.purefood.org>

<http://www.psrast.org/soilecolart.htm>

GRAPHICS & EDITING BY:
YAYASAN IDEP



www.idepfoundation.org

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AGRICULTURE & IPR

INTELLECTUAL
PROPERTY
RIGHTS

OWNING THE EXCLUSIVE RIGHTS TO PLANTS & ANIMALS ???

INTELLECTUAL PROPERTY RIGHTS

Transnational companies have the right to patent seeds that they have been able to modify genetically. Farmers will be tied into contracts to buy both seeds and chemicals, and will not be allowed to plant farm-saved seed. If a farmer uses genetically engineered seeds, that farmer has to sign a gene licensing agreement, which includes royalty fees and specifies the seed, fertilizer and chemicals that must be used.



80% of the patents on GM foods are owned by just 13 corporations. Such rights have traditionally been associated with non-living inventions in industrialized and market-based economies. Now they are being used in agriculture. Patents are generally granted by a government authority conferring the exclusive right to make, use or sell an invention (including GMOs) for a period of 20 years.

A REAL LIFE CASE

Percy Schmeiser
was accused
by Monsanto

because he, they say, planted GMO Canola seeds without a license and did not pay the royalty fee to the company for using its technology. He claims he did not buy Monsanto's patented seed, nor did he obtain the seed illegally, and that pollen from genetically engineered canola seeds blew onto his land from neighboring farms. Monsanto's inspectors came to his farm and took seed samples without his permission. It would appear that Percy Schmeiser was a victim of genetic pollution from GMO crops.

The court ruled that he must pay Monsanto CN\$ 19,832 for licensing fees and CN\$153,000 for Monsanto Court costs. Not to mention the case costs to the Schmeisers, which was CN\$200,000. To pay this, they had to mortgage their land and use most of their retirement savings. The legal case is now under appeal.

IPR: CORPORATE CONTROLLED AGRICULTURE

1.

Farmers & native people will no longer be able to use seeds or natural resources available in their environment, or to implement agricultural methods that they have long used. Instead, they will have to pay royalties to big companies or a group of people who own agricultural product patents.

2.

Monopoly practices could occur. Only small numbers of giant companies will own the patents that will give them "special rights" to seeds in the world. That mean, they will have a monopoly and determine prices, as they choose.

3.

This will of course increase farmers' dependency on giant multinational companies.

DO YOU WANT A GENETICALLY MODIFIED FUTURE?

IF THEY PATENT OUR RICE THEY PATENT OUR LIFE !

BIO PROSPECTING



is the exploration, extraction & screening of biological diversity and indigenous knowledge for commercially valuable genetic and biochemical resources. A growing number of pharmaceutical corporations and biotechnology companies (& their intermediaries) are researching the forests, fields and waters of the developing world in search of biological riches and indigenous knowledge. Northern based institutions seek access to tropical biodiversity for the primary purpose of developing patented & profitable products.

A REAL CASE

A seed company from Texas, RiceTec patented three hybrid versions of Basmati - they are Texmati, Jasmati, and Kasmati. RiceTec produced the varieties by crossbreeding Basmati seed with American long grain rice. RiceTec was also given permission to claim that its brands (the Texmati, Jasmati, & Kasmati) are "superior to Basmati".

This company is now able to produce their own rice in America, sell it in America and even export it. That means India may lose its lucrative Basmati export market in America and other countries in the world. The Indian government is concerned, because Basmati rice export makes a large contribution to India's income, & has been the source of living for many poor Indian farmers.

AND BIO PIRACY

is theft or robbery of biological and genetic resources indigenous to a country. These biological resources are often the main targets of enterprising businessmen because of their many uses in agriculture, health care and chemical industries. The process of biopiracy involves collection of samples of biological resources; this material then undergoes product development for use on a commercial scale. Also, with biopiracy, there is no need to pay any financial compensation to the country where the biological material originated. This material is often patented.

MADE POSSIBLE THROUGH
SUPPORT FROM :



Bina Desa

COMPILED AND EDITED BY SHINTA SOPHIE & YAYASAN IDEP - RESOURCES:

Agriculture and IPR - IDEP Article

<http://www.percyschmeiser.com>

<http://www.natural-law.ca/genetic/NewsMay-June98/GENews5-15Rice.html>

GRAPHICS & EDITING BY:
YAYASAN IDEP



www.idepfoundation.org

To Start Your Garden

1

First, you need to choose your location carefully
(start small ! - 2 m² or 1.2m diameter for round gardens)



Locations with too much sun will require much more care



This location is Perfect!
It has morning sun, partial shade & is near the kitchen



Careful! Locations like this with too much shade won't work

2

Now choose your plants...



Your plant choice check list :

1. Choose plants you like ! ☐
2. Will they grow quickly ? ☐
3. How big they will get ? ☐
4. Is it the right climate ? ☐

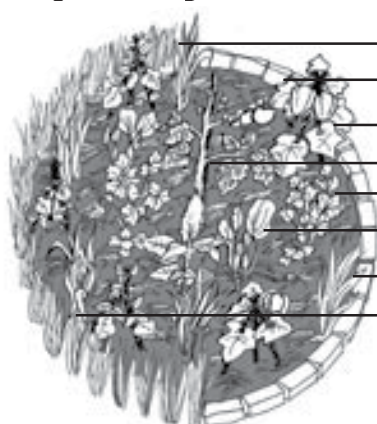
You can choose from our list of organic seedlings - or you can get some cuttings from friends.
Write your choices here:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

You can draw your own garden plan here...

3

Plan your garden's layout...



• This is an example of a simple garden plan •

FILL THE SPACE, BUT DON'T CROWD YOUR PLANTS TOO MUCH !

Now that you have a good plan for your garden - turn the page to see what you'll need to start Gardening!



These are the things that you need to start ...



LOCATION
refer back to
step #1 when
you choose
ideal location



SEEDLINGS
choose at least
5 kinds that
meet your
check list
requirements



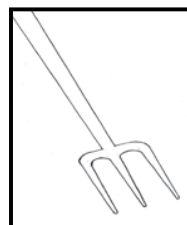
COMPOST
you'll need
quite a lot -
enough to cover
your garden w/
5cm all over



MULCH
grass clippings,
dry leaves,
sawdust,
straw, shred-
ded paper, etc.



GARDEN TOOL
a tool like this,
spoon or your
hands to make
holes for
seedlings



'CULTIVATOR'
or some other
tool that yo can
use to break up
the soil of the
garden bed



WATER
hoses should
use a spray
nozzle or else a
watering can is
also good

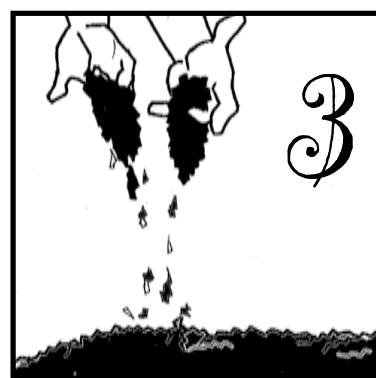
What you do to prepare & plant your garden ...



Create your garden's border
as per your location plan -use
bricks, stones or any good
border plant like lemongrass



Break up the soil as loose as pos-
sible & don't walk on the loose soil !



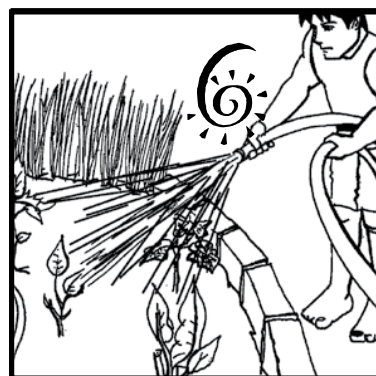
Cover the broken up soil with
about 5 cm of good compost
- you'll always need lots of
compost so make it at home !



Mix the soil and compost
together - you can use your
hands, it feels great!



Plant your seedlings as per
your planting plan & then label
your plants so you can learn
how they grow



Make sure to water your gar-
den thoroughly - a couple of
good soaks per week is better
than a little bit often



Put compost around the base of
all the seedlings - leaving some
space for them to "breathe"

After your garden is made, remember to refer to your
check list for your garden's ongoing maintenance !

If you any problems please KLIK our
website:

www.idepfoundation.org



Garden Daily Check List

Look at Your Garden Everyday !



Enjoy the scenery

and harvest when your plants are ready to eat!

Daily Maintenance



Water your garden, not too much - moist but not really wet



Remove weeds, anything that you didn't plant or can't use

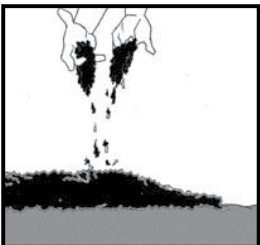


Check for pests and remove them by hand immediately, or call us



Add more compost or mulch if you see any exposed soil.

After harvesting Annuals start the planting process again.
You can keep harvesting Perennials again and again.



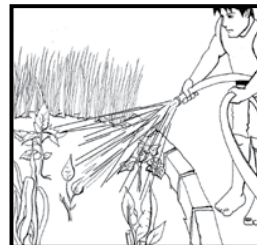
Cover soil with about 5 cm of good compost



Mix soil and compost together 15cm deep



Plant seedlings, try new ones this time...



Water your garden thoroughly after planting



Put compost around seedlings and mulch space between them

Other things you can do...



Use walls or trees for growing climbing plants like marigold or pumpkin !

Some Important Tips...

- Fill empty spaces with new seedlings (more food, less room for weeds).
- If a crop doesn't work - no worries, just try different ones.
- Planting the same thing in the same place too many times causes pests.
- Ants love to eat seeds. If you use seeds, you might lose them. Try planting seeds in pots and then transplanting them when they're ready.

For more information please contact Yayasan IDEP

see our website

www.idepfoundation.org



Companion Planting Chart

Some Natural
Insect Repellent Tips

Companion Plant	Ants	Beetles	Butterflies	Caterpillars	Chiggers	Cicadas	Crickets	Earwigs	Fleas	Flies	Fruit Flies	Grasshoppers	Ground Squirrels	Harvest Weevils	House Flies	Japanese Beetles	Leaf Miners	Longhorn Beetles	Mice	Moths	Nasturtiums	Onions	Pests	Pumpkins	Radishes	Roses	Sage	Savory	Slugs	Spiders	Stink Bugs	Strawberries	Sunflowers	Tomatoes	Yarrow	Zucchini
Apple																																				
Asparagus																																				
Apricot																																				
Basil																																				
Beans																																				
Broad Beans																																				
Bush Beans																																				
Climbing Beans																																				
Beets																																				
Borage																																				
Cabbages																																				
Carrots																																				
Celery																																				
Cherry																																				
Chervil																																				
Chives																																				
Corn																																				
Cucumber																																				
Eggplant																																				
Fennel																																				
Marigold																																				
Fruit Trees																																				
Garlic																																				
Gooseberry																																				
Grape Vine																																				
Grass																																				
Horseradish																																				
Lavender																																				
Leeks																																				
Lemon Balm																																				
Lettuce																																				
Marjoram																																				
Mint																																				
Mustard																																				
Nasturtiums																																				
Onions																																				
Parsley																																				
Panicle																																				
Potato																																				
Pumpkin																																				
Radish																																				
Raspberry																																				
Rosemary																																				
Roses																																				
Rue																																				
Sage																																				
Shallots																																				
Silverbeet																																				
Spinach																																				
Strawberries																																				
Sunflower																																				
Tansy																																				
Thyme																																				
Tomato																																				
Yarrow																																				
Zucchini																																				

☺ = companion
X = antagonistic



GURIH GURIH GIZI (GGG) FORMULA

HOW TO MAKE THIS FORMULA FOR GOOD HEALTH

One tablespoon of GGG has all your daily needs for vitamin A, iron and iodine, and it tastes great. This formula has been approved by nutrition scientists as being good for children, pregnant and lactating women. GGG is easy to make and can be stored for a long time. The main ingredients for making it are vegetables that you can harvest from your own garden.

INGREDIENTS NEEDED TO MAKE GGG ARE ...



**marunggai
leaves**



**water
spinach**



**sweet potato
leaf**



**regular
spinach**



**bak
choi**



sugar



**iodized
salt**



peanuts



**powder milk
(or coconut
shavings)**



flour



**cooking
oil**

- | | |
|--|-------------------------------------|
| Mixed greens (5 types listed above) | : 1 kg |
| Iodized salt | : 1 1/2 tbls (to your taste) |
| Granulated Sugar | : 1 1/2 tbls (to your taste) |
| Peanuts or roasted sesame seeds | : 1/2 cup |
| Milk powder (or coconut shavings) | : 3 tablespoons |
| Rice Flour | : 1 cup |
| Fresh cooking oil (use one time only) | : 1/2 Liter |

(after you make GGG you can use the oil again to cook other things)

THE COOKING TOOLS NEEDED TO MAKE GGG ARE...



spoon

pestle & mortar



metal sieve



frying pan



wok



**sterile & air tight
container for storage**

HOW TO MAKE THE GURIH GURIH GIZI FORMULA...



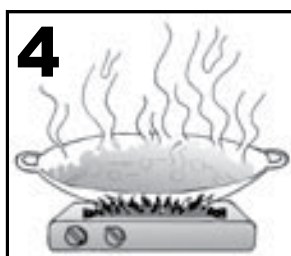
1
separate leaves
from their stems



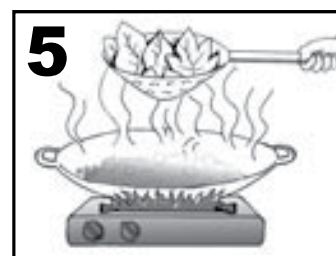
2
wash the
leaves carefully



3
dry leaves
thoroughly



4
heat enough oil to
cover the leaves



5
fry the leaves until they are
completely dry and strain



6
after finished cooking
make sure to drain all
the oil off the leaves



7
then crush
the crispy leaves
with pestle



8
toast the flour, peanuts (or
sesame seeds) without oil
until they turn brown



9
put flour and nuts
into a bowl with
salt and sugar



10
add the milk and
mix everything
together

YOU CAN ADD MORE FLAVOR BY ADDING CHILI OR SUGAR AND SALT TO YOUR RECIPE

11 Sieve together...

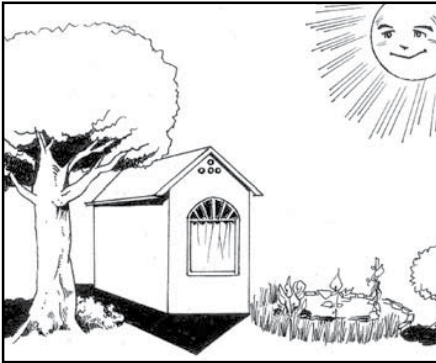
Just one tablespoon of
GGG per day, will give
you all the iron, iodine
& vitamin A you need!



How to use Gurih Gurih Gizi.
GGG is delicious when it is
sprinkled on rice, porridge,
noodles etc...

**You need to store Gurih
Gurih Gizi in air tight and
sterile containers. Stored in
this way, GGG will keep for 3
months, if kept in a refrigerator it
will keep for 6 months.**

Gurih Gurih Gizi Garden



This location is Perfect!
It has morning sun, partial
shade & is near the kitchen

1 Choose your location

Locations with
too much sun
need more care

CAREFUL!

Locations with
too much shade
won't work



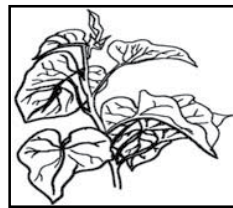
And if you don't have a garden space
you can grow your GGG plants in
bamboo, pots & even old tires!

2

Get the plants! The five easy to grow GGG plants are :



merunggai
(plant a clipping)



water spinach
(plant a clipping)



sweet potato leaf
(plant a clipping)



spinach
(plant seedlings)



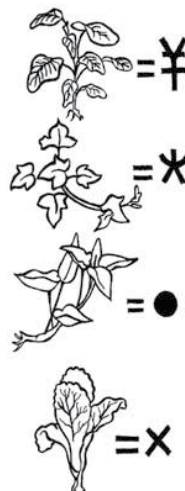
Bak Choi
(plant seedlings)

You can get all the seedlings you need for GGG from young GGG plants in your area, or use the left-overs from cooking - Also you can find most or all these plants in your local market.

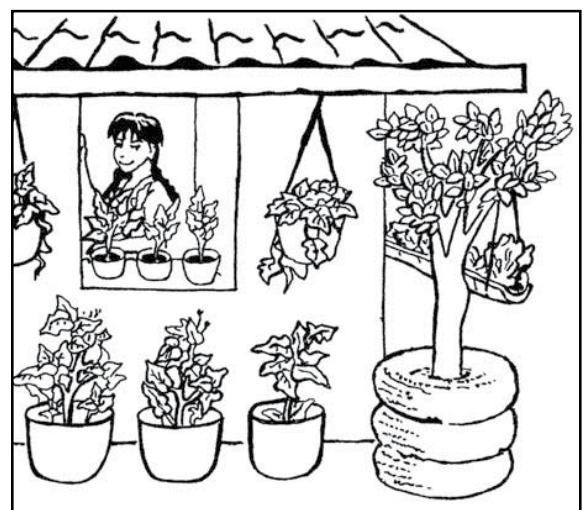
3

Now you can plan your garden's layout...

Something like this...



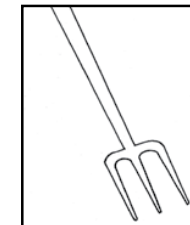
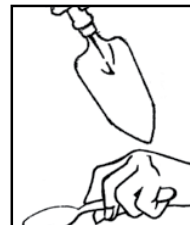
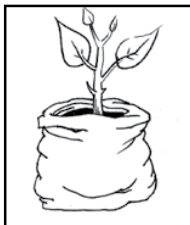
Or Something like this...



YOU CAN ALSO ADD OTHER PLANTS TO YOUR GARDEN - FILL THE SPACE, BUT DON'T CROWD YOUR PLANTS TOO MUCH !



These are the things that you need to start ...



Location

refer back to step 1 when you choose the ideal location

Seedlings

the seedlings you will need to make GGG (step #2)

Compost

you need a lot, enough to cover your garden w/ 5 cm all over

Mulch

grass clippings, dry leaves, sawdust, shredded paper, straw, etc

Garden Tool

a spoon is fine or use your hands to make holes for seedlings

"Cultivator"

or some tool to break up the soil of the garden bed

Water

a watering can is best - if you use a hose make sure the water's not too strong

WHAT YOU DO TO PREPARE & PLANT YOUR NEW GARDEN ...

IF YOU USE A REGULAR GARDEN BED :

1



Create a border around your garden (keeps weeds out) as per your garden plan - you can use bricks, stones or any plants that have barrier like roots such as lemongrass

2



Once your garden's area is defined, break up the soil within the borders so it's as loose as possible. Plants need air to breathe too! Make sure you don't walk on the loose soil that you made!

3



Cover the broken up soil with about 5 cm of compost - remember you'll always need lots of compost so make sure you know how to make it at home (it's easy)!

4



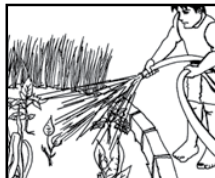
Mix the soil and compost together - you can use your hands - it feels great, and is the best way to get the soil well mixed without compacting it.

5



Plant your seedlings as per your planting plan, well spaced (about 15 cm apart), & if you want you can label your plants, so you can learn how they grow

6



When you're done make sure to water your garden well - & keep in mind that a couple of good soaks per week is better than a little bit often

7



If you find any exposed soil, put more compost around the base of the plants that need it - remember compost is healthy plant food, which will make your plants into healthy people food!

IF YOU ARE USING POTS & BAMBOO :

Place all your pots & hanging planters in an area where they will be sure to get the morning sun but not get burnt by too much sun all day long.



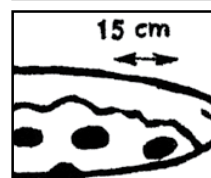
Prepare your potting mixture: you can use either of these...
1/2 soil + 1/4 compost + 1/4 sand
or if you can't find soil, use:
1/2 compost + 1/2 sand



Fill all your pots with the planting mixture that you have made, don't pack it too tight! Then make small holes to put your seedlings in.



Plant a few of each of your seedlings per pot, about 15 cm apart, except for Merunggai which gets big so you need to plant one per big pot or about 60 cm apart.



Merunggai needs more space & soil for growing. One great way to plant it is in stacked old tires. We suggest using 3 tires to have a deep enough soil base.



Make sure to water your plants thoroughly - with plants in pots you need to water after - but don't give them too much water or you will drown them. Water about every other day.



You **SHOULD NEVER** use any kinds of chemical pesticides or fertilisers!!! With compost your plants will be very strong & will contain lots of vitamins & minerals to make you healthy.



1

2

3

4

5

6

7

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info@idepfoundation.org THANKS