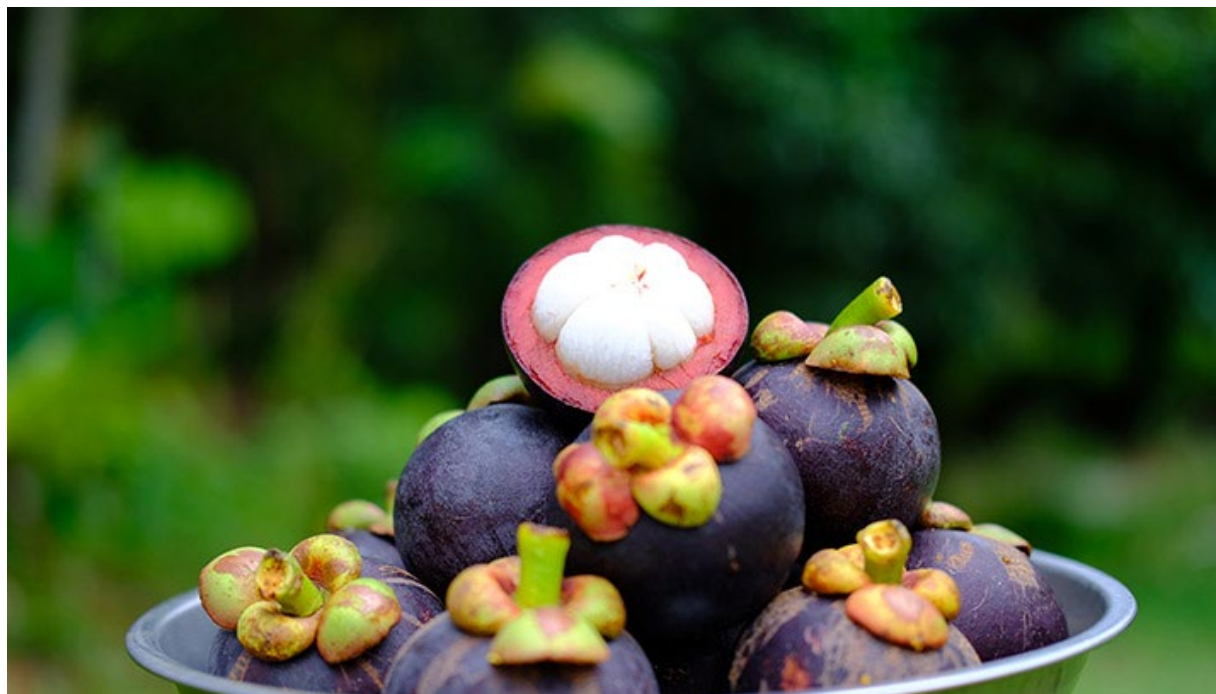


ARISE Plus Thailand

Organic Mangosteen Production Technique



By:





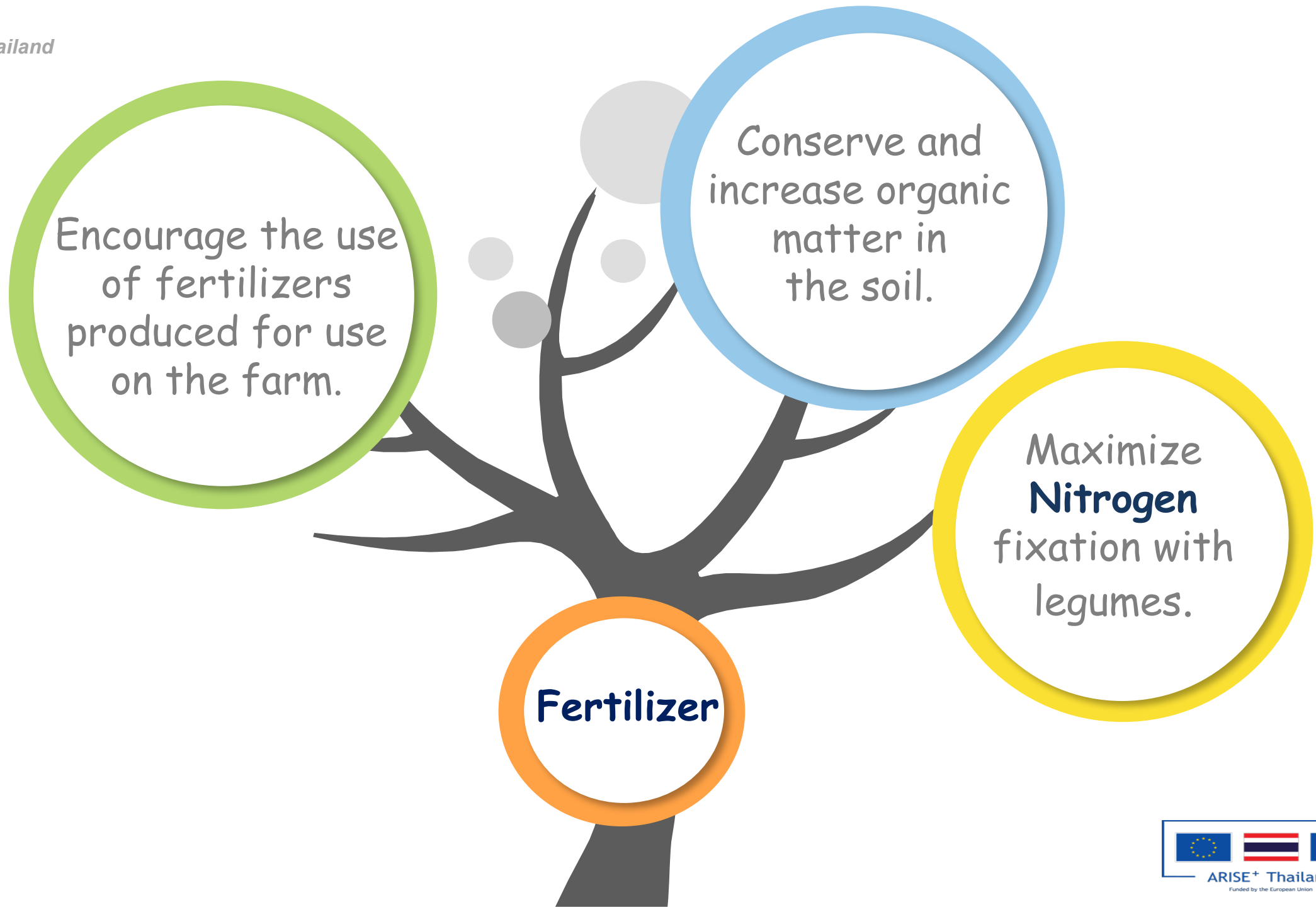
10 Rules

- 01 Do not use any synthetic chemical fertilizers.
- 02 Do not use chemical pesticides.
- 03 High diversity and no burning
- 04 Use organic seeds
- 05 Prevent contamination



10 Rules

- 06 Prohibit parallel production (organic vs conventional)
- 07 Must go through conversion period
- 08 Separate produce and label it.
- 09 Record and store documents.
- 10 Understanding and cooperation



Use of manure

- Use on plants that are not at risk.
 - Use more than **3** months before the first harvest: No fermentation required.
 - Not more than **3** months: **It must be completely fermented**
- Use on plants that are at risk, plant that its yield touches the soil.
 - Use more than **4** months before the first harvest : No fermentation required.
 - Not more than **4** months: **Must be completely fermented and must be able to display the composting record as well as the temperature record of the manure pile over a period of 15 days.**



<https://www.thaikbf.com/images/content/product/v2/pic-powder.png>



- Manure **must not** come from industrial farms.
 - Focusing on the fermentation process completely
- For a list of permitted substances, see Appendix A, Table A.1.

1. Fertilizer



- Manure **must not** come from industrial farms.
- Use manure not more than 170 kg N/ha per year or cow manure 2,176 - 2,720 kg/rai/year.

For a list of authorized substances, see Implementing Regulation (EU) 2021/1165 ANNEX II Article 24(1) of Regulation (EU) 2018/848.



- Focusing on the fermentation process completely
- For a list of permitted substances, see <https://www.omri.org/omri-search>

1. Fertilizer

Caution

External inputs, including the use of green manure and cover crops, need to be approved by the certification body and documented in order to comply with organic production rules.



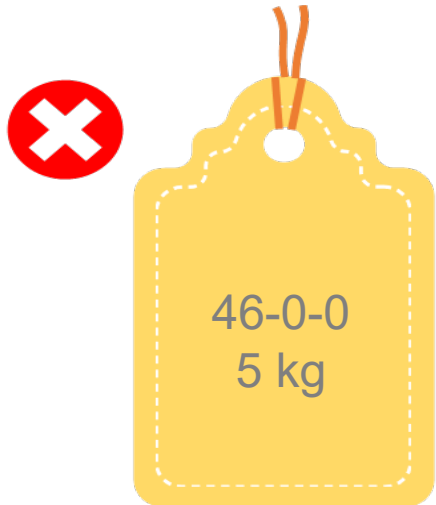
<https://www.thailandplus.tv/wp-content/uploads/2022/04/514921-e1650345331182.jpg>



https://www.mitrpholmodernfarm.com/public/images/uploads/87d2c0e7_4de648aed94e7a4086747258d6558e10.jpg

1. Fertilizer

Frequently encountered problems



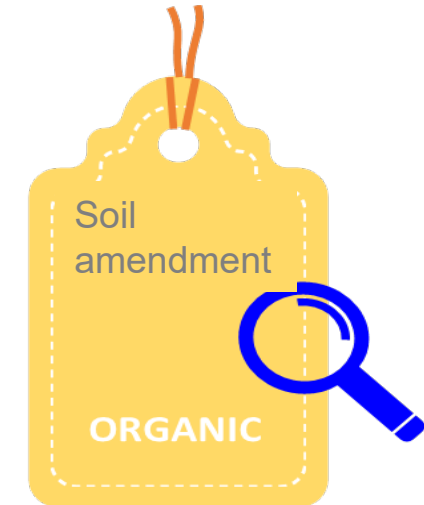
still use chemical fertilizers
(Always say just a little use)
in the part that doesn't sell to
the group / for self-consumption



"I'm afraid that I won't
get the product."
"I'm still not confident.
Let me use it a bit."



government sector or
a project to distribute
organic fertilizers to use



Believe the merchant or
neighbor that it is organic
fertilizer. Misunderstanding
that it can be used



**It must be checked from the authorization list of the standard
and must always seek approval before use**



2. Pest and weed control

Do not use any chemical pesticides such as herbicides, insecticides and disease-causing agents.

Use natural enemies

Use a machine tool

If it is necessary to use pesticides, it **must be used organic pesticides.**

2. Pest and weed control



For a list of permitted substances, see [Appendix A, Table A.3.](#)



For a list of permitted substances, see [Implementing Regulation \(EU\) 2021/1165](#)
ANNEX II Article 24(1) of Regulation (EU) 2018/848



For a list of permitted substances, see <https://www.omri.org/omri-search>

3. Sustainable and environmentally friendly production

Do not burn waste or leave garbage in the garden.

Do not destroy protected forest areas.

Cover crops between planting rows to prevent soil erosion.

There is a wide variety of plants in the garden according to their uses.



<https://www.technologychaoban.com/wp-content/uploads/2019/06/2-14.jpg>

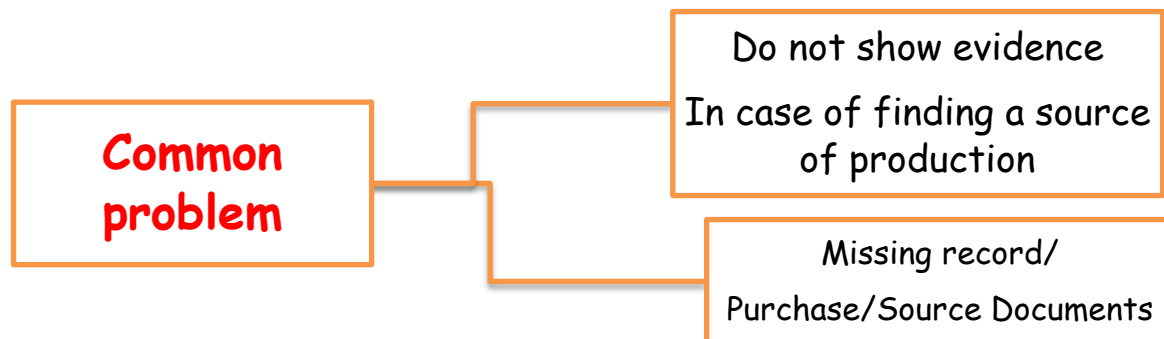
4. Seedlings and seeds

Mangosteen seedlings and other plants that are planted in the area

Use self-produced seedlings or from farm that have been certified according to the organic standards you wish to apply for certification.

The use of non-organic seedlings is allowed. If there is information showing that organic seedlings cannot really be found.

If using seedlings from general sources despite having organic seedlings
Sanctions, reduce the status back to the conversion period.



<https://www.seedafarmonline.com/Product/Detail/180243>

**Other plant seeds
that are planted in
the area.**

Do not mix with chemicals

Do not use genetically modified seeds.

Use seeds from organic sources that are certified according to the organic standards for which you are applying for certification. If you can't find it, you must have evidence.



For EU standards

Approval is required before use.

If used without applying for permission before planting 3 times, certification will be canceled.

Common seed problems

Planted for own consumption, planted only a small amount, subordinates planted but the farm owner did not inspect.

Given away or taken from neighbors

No permission is required before use.

Mix the seeds with drugs.

Lack of records/purchase documents/sources

Recommendations and precautions

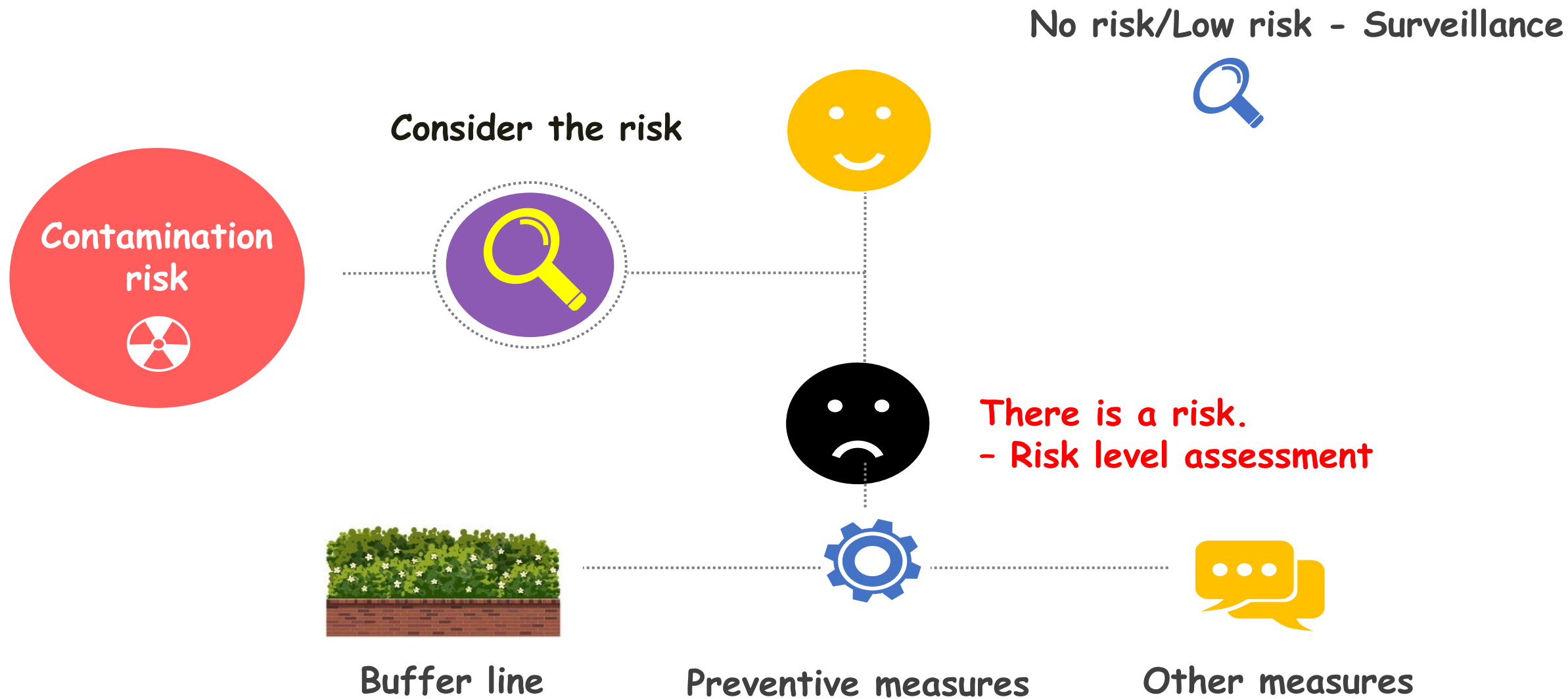
Should be bought in groups, or produced together within the group.

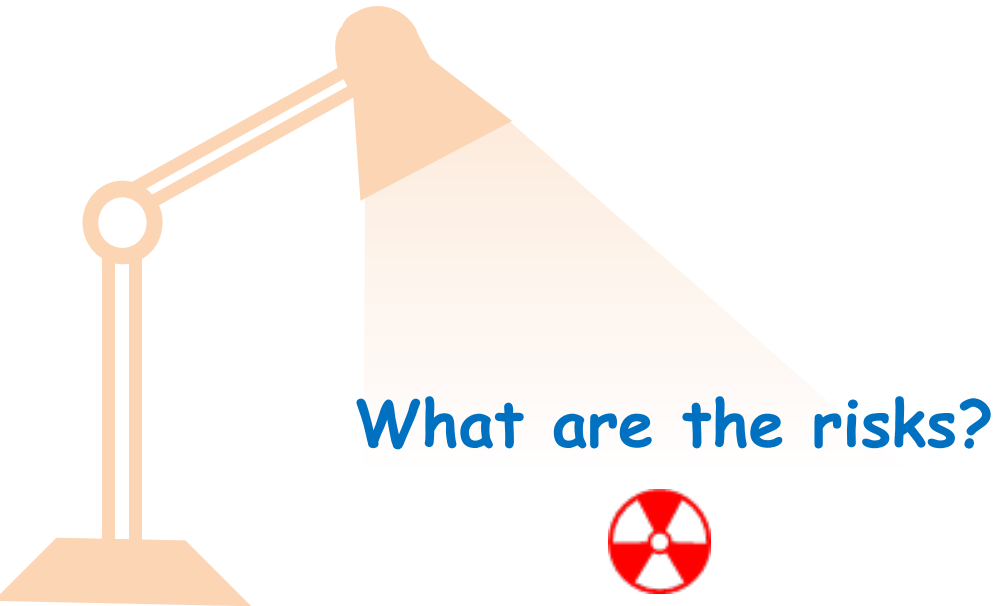
The regulations must be strictly followed even if the plants are grown for personal consumption.

The origin and planting of all plants must be recorded.

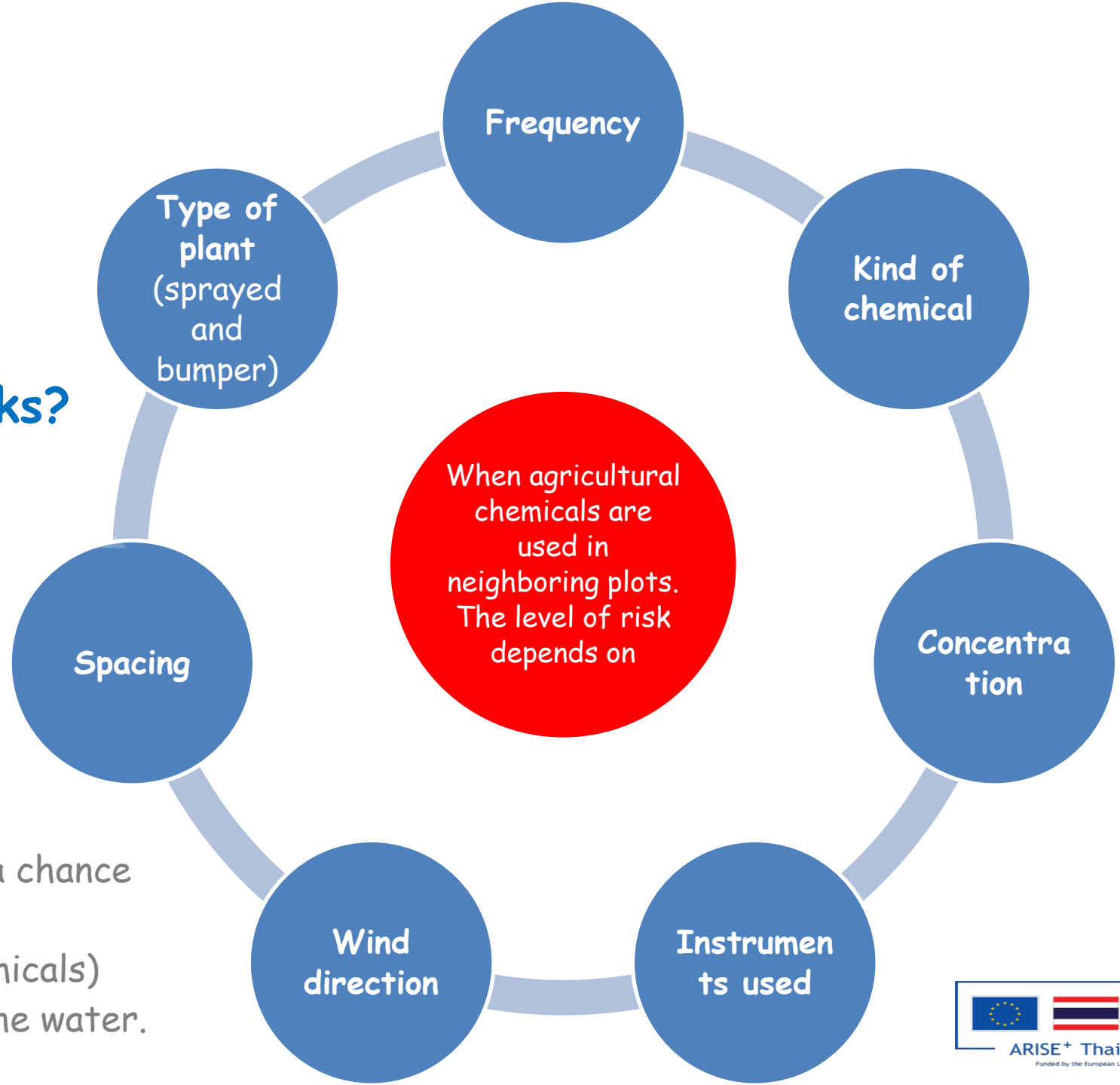
If you are not sure whether the seeds used meet the certification standards, ask the inspection unit first, or keep some seeds for the inspector to review during visit.

5. Avoid contamination





What are the risks?



In sloping areas, there may be a chance that the chemicals used (chemical fertilizers and chemicals) from the upper plot flow down the water.



<https://scontent.fcnx3-1.fna.fbcdn.net/>



What can be a buffer line?

Planting crops as a buffer line, such as grazing grass, fast growing shrub.

Roads or ridges that are farther away from neighboring plots of at least 1 meter

Cash crops or agricultural crops that are not certified

Rice planted as a buffer line, must be a different breed with noticeable difference.

(Be careful! produce must be clearly separated, labeled, and recorded.)





Additional recommendations

- Discuss to neighboring farmers to jointly find solution.
- Signing a joint agreements
- Community regulation, etc.

6. Parallel production

Farmers with multiple plots of land with organic production plots alongside other plots that have not yet been certified have 2 cases.

Plots of organic production and other plots where other crops are chemically grown.

Organic production plots with other plots that grow non-organic mangosteen.

Plots of organic production with other plots growing other conventional crops.



It will be permitted with the following conditions

Different harvesting, transportation and packaging containers must be arranged.



Tools and equipment must not mix.

Keep the production input factor separate and clearly label them.



Separate related documents.

6. Parallel production

Organic production plots with other plots that grow **conversion periods** or **conventional production** of the same crop.



Permitted the same applies to the case when other plots are conventional productions with other crops and additional conditions like...

- Store organic produce separately from products from conversion period and products from conventional production by
 - Separate storage area
 - Put a label indicating the organic status (organic, conversion, or conventional) of the produce on the containers.

6. Parallel production



Organic production plots with other plots that grow conversion periods or conventional production of the same crop.

- **Not permitted** In case of other conversions to conventional mangosteens
- **Permitted** In case the other plots are the conversion period and there is a good post-harvest sorting system.

Frequently encountered problems

The case of **organic** parallels with **conventional**

- Information is not disclosed / Concealed
- Misunderstood / Miss out
- Sell them together

The case of **organic** parallels with **conversion**

- Harvest simultaneously
- Harvested together / No specified label
- Sell them together

7. Conversion period



A conversion period of rice	18 month before harvest	36 month before Planting	36 month before harvest
Beginning of the conversion period	Date of application for certification with the inspection agency	The date the contract is signed or the date of the first internal inspection.	Last day to use banned substances

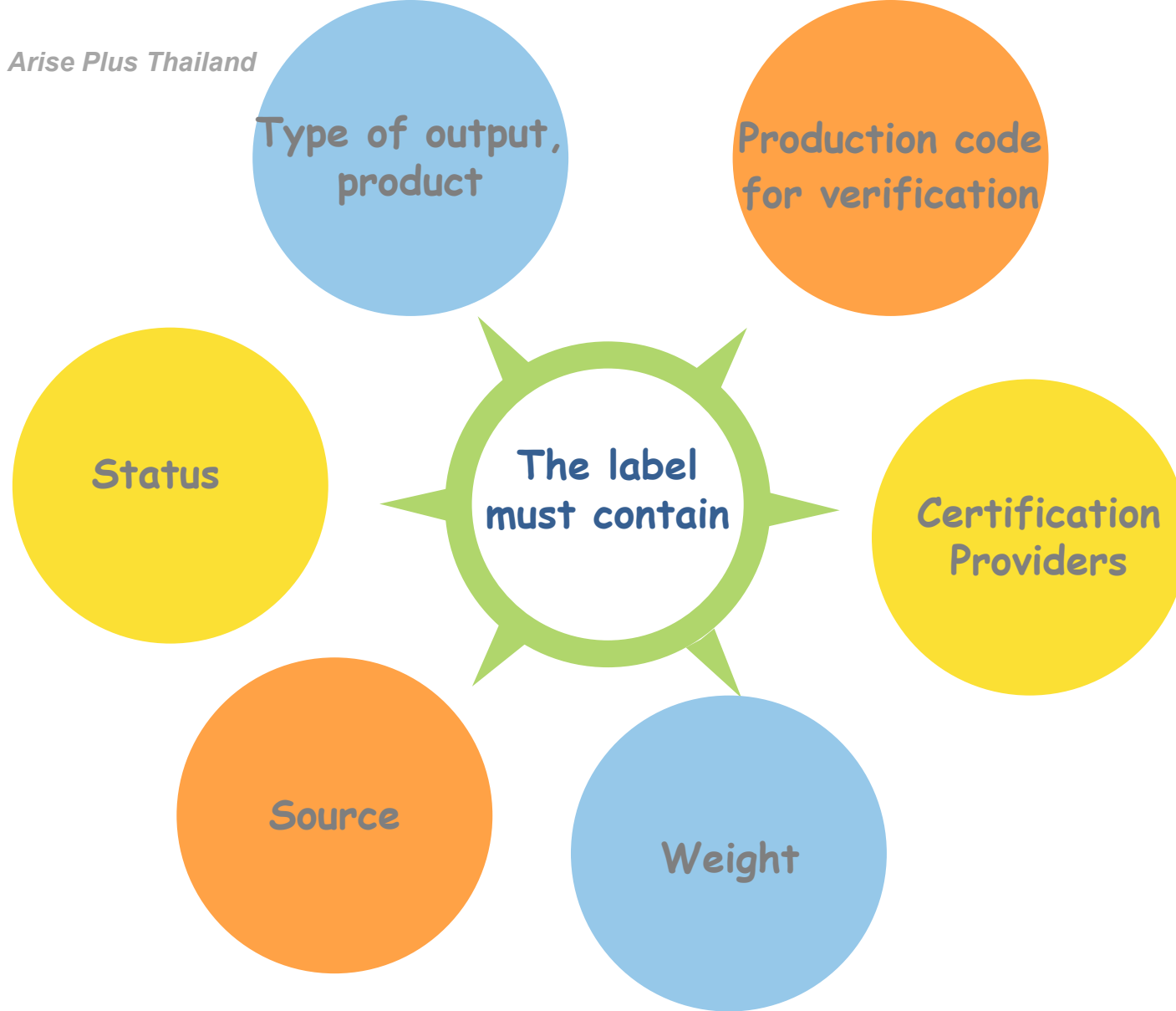
In case there is evidence of not using prohibited substances in the previous period, the duration of the conversion period can be reduced.

8. Separation of output and labeling

- Organic produce must be displayed separately from other production at all stages, from harvesting and storage, it must be labeled to see the organic product symbol during storage and transportation every time.
- In cases where the product is stored in separate bins, a label symbol must be made, and the symbol must indicate the source (e.g. name, farmer ID, plot ID). Status (e.g. organic or adjusted) and certification providers.

8. Separation of output and labeling

- Use only new packaging and display labels to store organic produce.
- Do not use old fertilizer bags or bags that are not used for food containers.
- Separate them during the production of "conversion" and "organic" produce.



Product	Organic mangosteens
Source Production ID	Chanthaburi Organic Mangosteen Producers Club Mrs. Yindee Sukjai 3-2-78-11 T2
Status	Yield from second-year conversion (T2)
Certification provider	Certified by certified by: CERES GmbH TH-BIO-140

9. Prepare records and related documents

- These records can be in a simple form that suits the farmer.
- But it is necessary to keep the record current and regularly.
- At the time they should be kept for internal and external inspections.

9. Prepare records and related documents

The standard requires the farmers to keep records of their farms and production

- Farm records
- Farm Location Map
- Record of yields and distribution
- Purchase and sales receipts

Farm Records

- Activities in Each Farm
- Activities in sub-plots
- Activities of Each Plant
- Daily Activities
- Others

Pictures

Production Factor

- Seeds
- Compost/Fermented water
- Soil amendments
- Biological substance
- Others

Receipt

Harvest / Sales

- Each crop must have it
- Specify the plot and day
- Sent for packaging/processing
- Sales record
- Others

Sales Document

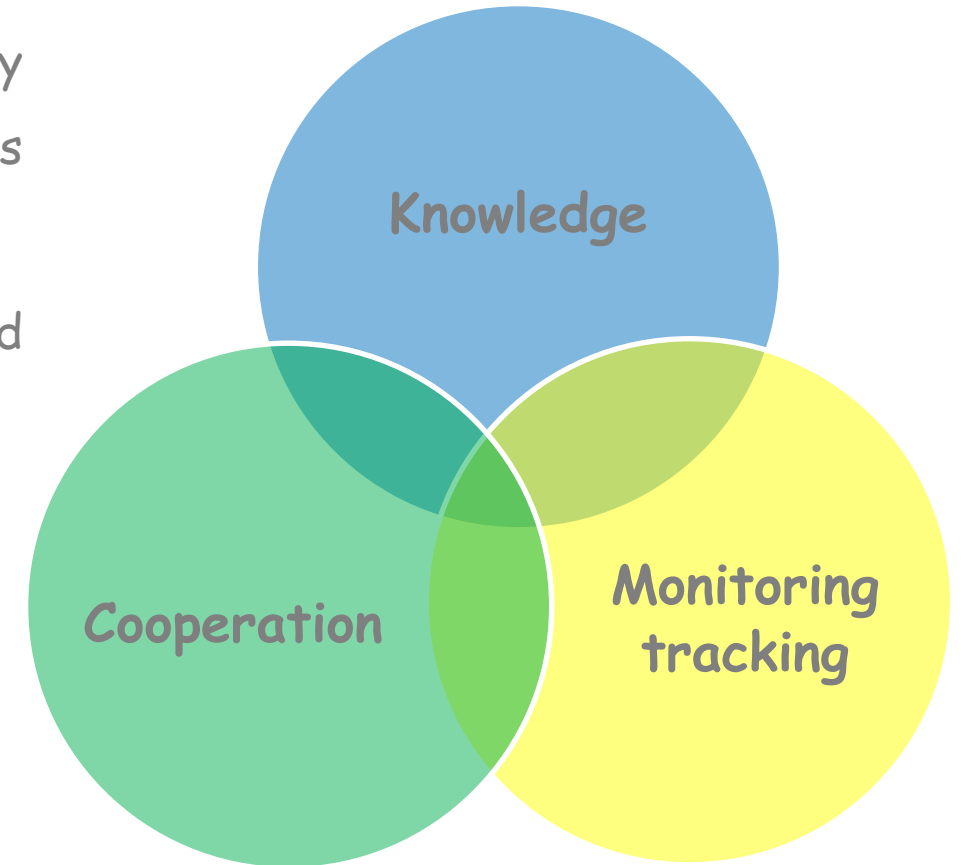
Post Harvest (If any)

- Washing
- Packaging
- Storage
- Delivery
- Others

Record/Form

10. Cooperate in internal and external inspections.

- ❖ There must be standard documents that farmers can apply for certification or documents on the requirements of groups that farmers are members of and study and understand.
- ❖ Must have sufficient knowledge of both regulations and techniques of organic farming.
- ❖ Daily operations
- ❖ Job tracking record
- ❖ Internal inspection of groups that farmers are members.
- ❖ External inspection of certification body inspectors.





10 Rules

- 01 Do not use any synthetic chemical fertilizers.
- 02 Do not use chemical pesticides.
- 03 High diversity and no burning
- 04 Use organic seeds
- 05 Prevent contamination



10 Rules

- 06 Prohibit parallel production (organic vs conventional)
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Production calendar mangosteen

The production of organic mangosteen to achieve good yield and standard requires attention throughout the year.

It is divided into 4 steps:

1. The process of preparing the plants to be ready for flowering (July to October)
2. The process of inducing flowering and controlling the number of flowers per plant appropriately (November to December)
3. The process of promoting the development of fruits and increasing the quantity of quality output (January to April)
4. The process of preventing crop damage (May to June)



The process of preparing the plants to be ready for flowering

Manage the fertilizer process to induce the breaking of **young leaves**. After harvest



Add manure or compost that has undergone a complete composting process. The rate is about 20-60 kg/plant . The soil should be analyzed once a year.



Foliar spraying with animal or plant bio-fermented water or animal or plant extracts at the rate of 1 liter / 1,000 liters of water.

Pour bio-fermented water from animals or plants or extracts from animals or plant through the soil or give way to the water system at the rate of 3 liters / 1,000 liters of water

The process of preparing the plants to be ready for flowering

Weeding (After harvest)

Mow the
grasses/weeds 2 - 4
times a year as
necessary, and
according to the early
age, it should be cut
before flowering and
before harvesting.

Grow medicinal
plants in the
mangosteen
garden such as
turmeric, chaplu,
citronella. etc



<https://i0.wp.com/www.kasetorganic.com/wp-content/uploads/2020/02/kamin-05.jpg?fit=1020%2C765&ssl=1>



The process of preparing the plants to be ready for flowering

Pruning to control canopy size (After harvest)

Trim once a year

Cut off the top in the height that exceeds the need for not more than 1 meter per year. Cut the overlapping branches in the canopy 2-3 branches per year and trim the branches on the sides of the canopy that exceed the need for about 50 centimeters.

Prune the branches to allow light in the east and west.



Leave the upper part in the shade.



Cut off the extra side branches outside the canopy.

The process of preparing the plants to be ready for flowering

Manage the fertilizer to induce young leaf breaking.

(After harvest)

Spray bio-fermented water or animal or plant extracts at the rate of 1 liter/1,000 liters of water through the leaves.

Pour bio-fermented water or animal or plant extracts into the soil or through the water system at the rate of 3 liters / 1,000 liters of water.



The process of preparing the plants to be ready for flowering

August - September

Manage fertilizers to promote fertility.
(11 - 12 weeks after harvest)

Spray egg hormone fermented water and/or
fermented water from shrimp shells, crabs,
shellfish.

Pour the fermented water from the yellow fruit or let it
through the water system at the rate of 3 liters / 1,000
liters of water 2-3 times before flowering.



The process of preparing the plants to be ready for flowering

August - September

Defeat the mangosteen enemies.

Thrips

- Plant extracts such as Neem, *Stemona tuberosa*, Siam weed, Turmeric, etc.
- Biological products such as Beauveria and Metarhizium
- Natural enemies such as white-winged beetles, black-legged beetles, long-legged flies, thrips, and spiders.
- Spray water using a mini sprinkler to increase humidity to repel thrips.



Thrips



Young leaves destroyed by thrips



Young leaves destroyed by leaf worms

Caterpillars feed on young leaves and caterpillars gnaw on young leaves

- Plant extracts such as Neem, *Stemona tuberosa*, Siam weed, Sweet Flag, Turmeric, etc.
- Biological products such as Beauveria and Bt (*Bacillus thuringiensis*)
- Natural enemies of wasp parasite



Caterpillars eat young leaves

The process of preparing the plants to be ready for flowering

Defeat the mangosteen enemies.

Red and white mites

- Sprayed with sulfur

Leaf spot and rust spot diseases, Anthracnose or leaf edge blight, Algae leaf spot and black mold disease

- Prune the branches to be airy.
- Plant extracts such as Siam weed, Sweet Flag, Turmeric, Lemongrass, Cassumunar ginger, etc.
- Biological products such as Trichoderma and BS (*Bacillus subtilis*)



The process of preparing the plants to be ready for flowering

August - September

Defeat the mangosteen enemies.

Recommendations for spraying pesticides

- Several species should be used together to increase pest toxicity.
- Should be sprayed to prevent the spread of insects.
- Active substances or active substances in plant extracts easily decompose when exposed to heat and sunlight, so must be sprayed when there is no strong sunlight (spray in the morning and evening).
- The same protective equipment should be used for spraying chemicals.



<https://www.thairath.co.th/news/society/1303502>

**** Don't forget to get permission from a certification body before use ****

The process of preparing the plants to be ready for flowering

Manage fertilizer to enhance the fertility of the tree.
(14 - 16 weeks after harvest)

Spray egg hormone fermented water and/or
fermented water from shrimp shells, crabs, shellfish.

Pour the fermented water from yellow fruits through
the water system at the rate of 3 liters/1,000 liters
2 - 3 times before flowering.

Procedures for inducing flowering and controlling the number of flowers

Induce flowering (before flowering)



When observing that the soil surface is dry, it starts to give water (around mid-November).

Measure soil moisture before watering should find additional suitable points of each area.

No leaf rake

Procedures for inducing flowering and controlling the number of flowers

Manage water to control the amount of flowers (1 week after flowering).



Let the water increase from the same as the appropriateness of the area.

Procedures for inducing flowering and controlling the number of flowers

Defeat enemies that destroy flowers (after flowering)

Thrips

- Plant extracts such as neem, *Stemona tuberosa*, Siam weed, turmeric, etc.
- Biological products such as Beauveria and Metaricium
- Spray water using a mini sprinkler to increase humidity to repel thrips.



Procedures for promoting fruit development and increasing yield

Destroy enemies that destroy the effect (after blooming).

Thrips and white mites, sprayed with organic protection.

- Plant extracts such as neem, Hang Lai, Siam weed, Sweet flag, Pakakong, etc.
- Biological products such as Beauveria and Metaricium
- Spray water using a mini sprinkler to increase humidity to repel thrips.



Procedures for promoting fruit development and increasing yield

Appropriate amount of fruit per plant (after flowering)

Provide water to control the amount of fruit per tree to cause fruit drop, remaining about 35 - 50% of the total amount.



<https://inwfile.com/s-r/z6p658.jpg>

Procedures for promoting fruit development and increasing yield

Fertilization (fruit age about 4 weeks after flowering)

Add manure or compost that has passed the complete fermentation process at the rate of about 20 - 60 kg/tree.

Spray bio-fermented water or extracts from animals or plants through the leaves at the rate of 1 liter/1,000 liters of water.

Pour bio-fermented water from animals such as fermented fish or plants such as fruits or extracts from animals or plants from the soil or through the water system at the rate of 3 liters / 1,000 liters of water.



<https://www.nanagarden.com/picture/product/400/webp/342354.webp>

Procedures for promoting fruit development and increasing yield

Fertilizing

Spray bio-fermented water or extracts from animals or plants through the leaves at the rate of 1 liter/1,000 liters of water.

Pour bio-fermented water or animal or plant extracts into the soil or through the water system at the rate of 3 liters / 1,000 liters of water.



Procedures for promoting fruit development and increasing yield

March - May

Watering (after flowering onwards)

Give water 200-600 liters/tree, every other day.



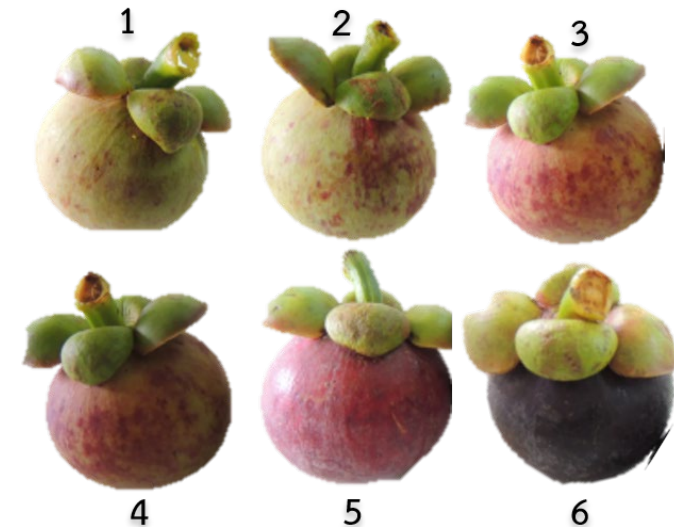
Procedures to prevent damage

May-June

Protection against harvest damage (13 weeks after flowering onwards)



- Use tools that prevent the mangosteen fruit from falling or hitting hard.
- Be careful not to break the terminals or bruise the calyx.
- Pick only the fruits that are ripe in the pedigree stage.
- After the mangosteen is harvested
 - Keep it in the shade
 - Cleaning effect
 - Scrape off the peeled rubber.
 - Quality sorting before selling



Link Additional Knowledge in Fertilizer Production, Compost and Pest Control in Organic Organic Farming

Production of 3 types of microbial fermented water

https://www.youtube.com/watch?v=ok6bvb_TmZY&list=PLHG0U3OvUZUSEZifDdRz6Ugn5SFWMeHca&index=1

Production of white fungus

<https://www.youtube.com/watch?v=sqzxbBe0y5U&list=PLHG0U3OvUZUSEZifDdRz6Ugn5SFWMeHca&index=4>

Biological pest control (Trichoderma)

<https://www.youtube.com/watch?v=2PGDFwrkgU8&list=PLHG0U3OvUZUSEZifDdRz6Ugn5SFWMeHca&index=7>

Organic Fertilizer Production

<https://www.youtube.com/watch?v=-naw7gH2o64&list=PLHG0U3OvUZUSEZifDdRz6Ugn5SFWMeHca&index=8>

Production of organic fertilizers without turning over the net piles

<https://www.youtube.com/watch?v=9RV5jl9GwpY&list=PLHG0U3OvUZUQDPVX278TTT2R0XUTMpKW6&index=4>

Biological pest control technology (Bio-Control)

https://www.youtube.com/watch?v=_w89OsreyxQ&list=PLHG0U3OvUZUQDPVX278TTT2R0XUTMpKW6&index=7

For more information



Trainer's guide Production and processing of organic mangosteen in Thailand
Chapter 4 Organic Mangosteen Production Technique

