



*Manda*  
FERMENTATION USA  
MANDA HARVEST  
PRACTICAL GUIDE

## **I. Manda Harvest Information**

### **A. Nature and Substance**

#### 1. What is Manda Harvest?

Manda Harvest is an agricultural material that activates vitality in plants. By using Manda Harvest diluted solution through spraying or irrigating, plants will grow vigorously.

#### 2. What is Manda Harvest made from, and how is it produced?

Manda Harvest is a plant activator which is produced using technical knowledge acquired during the development of Manda Koso. Manda Harvest is a blackish or dark-brownish pasty product of 1.3 specific gravity and 4.0 pH. Manda Harvest is made from 41 kinds of botanical raw materials such as fruit cereals, edible algae, and others with a base of brown sugar, and finished with repeated natural fermentation and maturation over three years.

#### 3. Is Manda Harvest an agricultural chemical or a fertilizer?

Manda Harvest is not an agricultural chemical. Manda Harvest is applied as a "special fertilizer" and approved by Hiroshima prefecture in Japan. Though Manda Harvest is a "special fertilizer", it has little fertilizer components, so it requires the usual fertility management.

### **B. Functions and Effects**

#### 1. What functions and effects does Manda Harvest have?

Plant physiology is activated by spraying or irrigating Manda Harvest diluted solution, and the following effects will be seen:

- a. Growth promotion (good root extension, etc)
- b. Good harvests
- c. Quality improvement
  - Improving eating quality (sugar content or eating quality value)
  - Increasing nutrient components (Vitamin C, etc)
  - Improving vividness of flower color
- d. Disaster recovery enhancement (damage from typhoons, floods, etc)
- e. Quality-retention improvement (longer retention of freshness)

2. Is it possible to conduct farming without agricultural chemicals or organic farming by using Manda Harvest?

Though it does not allow for conducting farming without agricultural chemicals, there are a number of case examples that pathogen control is down by half in cultivation of tea, apple, pear, strawberry, tomato, etc., since plant physiology is activated and crops grow up vigorously by using Manda Harvest. There are also many farmers who conduct farming without agricultural chemicals or conduct organic farming by controlling their soil and using Manda Harvest with other organic materials.

3. Does Manda Harvest affect weed growth?

Though we did not examine weed growth specifically, there are some reports that weeds also grow up vigorously by using Manda Harvest in a fruit orchard or a vegetable field.

4. Does Manda Harvest have any pesticidal effects or germicidal effects?

Manda Harvest has neither pesticidal nor germicidal effects directly. However, case examples reported from various regions show that pest and disease damages decreased by using Manda Harvest.

5. What crops does Manda Harvest tend to have effects on?

- a. Manda Harvest tends to have effects on annual crops sooner than perennial crops. However, perennial crops tend to take more profound effects than annual crops by continuous use of Manda Harvest.
- b. Manda Harvest tends to have effects on greenhouse crops faster than field crops.

### **C. Usage**

1. How can I use Manda Harvest?

- a. Spray Manda Harvest diluted solution on plant leaves using a sprayer
- b. Irrigate Manda Harvest diluted solution to plant roots
- c. Immerse seeds in Manda Harvest diluted solution before seeding

2. How about the dilution concentration and its effects?
  - a. In general, 10,000 fold Manda Harvest dilution solution is the basic dilution concentration for foliar sprays. It is also used within the scope of 5,000 fold to 20,000 fold. Basically, 10,000 fold to 20,000 fold dilution is used for the purpose of vegetative growth, and 5,000 fold dilution is used for the purpose of generative growth or quality improvement.
  - b. For irrigation usage, the dilution is the same as foliar spraying.
  - c. If you need much water dosage in spraying or irrigating, use 30mL Manda Harvest per application as a target for 10a farmland regardless of dilution concentration.
  - d. For crops in seedling stages or for smaller plants, it is convenient and effective to irrigate using a watering can.

#### **D. Combined Applications**

1. Is it possible to use Manda Harvest together with agricultural chemicals?

It is not recommended to use Manda Harvest together with agricultural chemicals. However, it may be required to use them together for labor efficiency. Crop injury by combined application has not been reported so far.

It is discouraged using Manda Harvest together with agricultural chemicals specified to be used in isolation, strong alkaline materials, or hormone agents.

2. Is it possible to use Manda Harvest together with liquid fertilizers?

It is effective to use Manda Harvest together with liquid fertilizers since Manda Harvest improves plant assimilation. There are various combination examples, such as the combination with quick-acting inorganic liquid fertilizer for the purpose of growth promotion, the combination with organic liquid fertilizer, such as amino acids, for eating quality improvement, and the combination with liquid fertilizers including calcium or other minerals prone to minimal absorption.

3. Is it possible to use Manda Harvest together with other agricultural materials?

Crop injury by combined application has not been reported so far.

However, the combination with agricultural materials should be determined after understanding each material's nature and properties.

4. Is a spreading agent needed for using Manda Harvest?

There is no need to use a spreading agent if Manda Harvest is used in isolation. It is ok to use a spreading agent if it is needed for combined application.

5. What should I pay attention to when using Manda Harvest together with other agricultural materials?

- a. Do a trial in a small farmland to see whether a problem occurs or not
- b. Avoid making mixed liquid at high temperatures in summer daytime
- c. Follow each dilution rate
- d. Follow the instructions of each agricultural material
- e. Make Manda Harvest dilution solution in proper dilution concentration first, then add the other agents

## **E. Storing**

1. How long is it possible to store Manda Harvest after breaking a seal?

It is possible to store Manda Harvest for long term, such as two (2) or three (3) years, if Manda Harvest is protected from direct sunlight and stored in a dry cool place after breaking its seal. However, we do suggest you use it up on that day.

2. Is it possible to store diluted Manda Harvest solution?

It is not possible to store diluted Manda Harvest solution long term. Use it up by the next day if possible.

## **II. Manda Harvest Technical Notes**

### **A. Basic Points to Enhance Manda Harvest Effectiveness**

1. Use Manda Harvest periodically through the entire period from early stages of raising to right before harvest
2. Frequent usage is more effective even if the the dilution concentration is low, such as 20,000 fold, in comparison to the basic dilution concentration of 10,000 fold.
3. Supply sufficient quantity of fertilizer and water as Manda Harvest's effectiveness becomes weakened by the lack of fertilizer and water. Add them in accordance with plant vigor or conditions.
4. Conduct usual fertility management as Manda Harvest contains little fertilizer component.

## **B. Application Methods of Manda Harvest**

1. Foliar spray
  - a. Spreading with a power sprayer, etc.
  - b. Spreading with a mist blower in greenhouses
  - c. Spreading thick liquid with a helicopter for large fields
  - d. Spreading using a sprinkler
2. Watering and irrigation (forcible pouring into the soil)
3. Combination of foliar application and watering

## **C. Functional Features of Manda Harvest**

1. Stable effects by continuous usage
  - a. Manda Harvest does not take immediate effects like nitrogen fertilizers which make leaf colors darker in a short time. Rather, Manda Harvest takes effect gradually
  - b. By periodical usage from the early stages of raising to the harvest stage, plant root or rootlet quantity is increased and plant absorption or assimilation is enhanced
  - c. Manda Harvest enhances photosynthetic performances and promotes plant growth, which lead to yield increase and quality improvement
  - d. Sufficient effects are expected if Manda Harvest is applied in accordance with the standard usage frequency and the standard dilution concentration. To increase Manda Harvest's effectiveness, increase the usage frequency rather than the concentration
  - e. If the usage interval is every 5 to 10 days, by increasing the frequency of usage, the more effective Manda Harvest will become
  - f. For perennial fruit trees, Manda Harvest promotes fruit ripeness and improves both the quality of fruit and storage life if it is thoroughly used in later stages, from the ripening stage to the stage just before harvest

## 2. Effects of using high concentration

The following effects are seen when using high concentrated dilution solution from 3,000 fold to 5,000 fold;

- a. Promotion of flower setting and fruit setting  
To prevent poor flower setting or poor fruit setting due to lack of sunlight, use 3,000 fold to 5,000 fold Manda Harvest diluted solution one or twice during the flower setting stage or the physiologic fruit abscission stage
- b. Disaster recovery  
To recover from climatic damage or pest and disease damage, use 3,000 fold to 5,000 fold diluted solution once or twice right after a disaster
- c. Quality improvement  
Quality improvement is expected by using once or twice just before harvest

## 3. Positive effects seen by sequential usage

- a. Sequential usage on perennial crops have effects not only on a single year basis, but also leads to consistent production sequentially as it offers reserve nutrient accumulation among other effects, such as growth promotion, yield increase, and quality improvement
- b. Sequential usage on annual crops cut back damage caused by continuous cropping and improves efficacy of Manda Harvest

## 4. General control to increase Manda Harvest effectiveness

Even if Manda Harvest is used in accordance with the guidelines, it does not always lead to a good result when seeding has been done at an unusual time, or when there has been an abnormal climate, or when fertility management hasn't been conducted properly

## 5. Attention to confirmation test

Unlike other agricultural materials, Manda Harvest is recognized to have the ability to spread over wide areas especially in foliar spray application, in which its effectiveness can be seen over 5 to 10m. When conducting a confirmation test, set a distance of 10m or more between Manda Harvest application plots and controlled plots

### III. Manda Harvest Usage [Standard]

#### A. Recipe for Leaf Vegetables #1 [Spinach, Komatsuna, Shungiku, etc.]

Stage	Dilute Concentration (Dilution Rate)	Application Frequency	Application Method	Purpose/Aim
After Seeding	10,000 Fold	Once (1)	Irrigation	Germination Promotion
After Coming out of Leaf Foliage	10,000 Fold	Twice (2) or Three (3) Times Every 10 Days	Foliar Spray	Growth Promotion
Before Harvest	5,000 Fold	Once (1)	Foliar Spray	Quality Improvement

Standard application amount is 100L per 10a farm field

#### B. Recipe for Leaf Vegetables #2 [Cabbage, Lettuce, Chinese Cabbage, etc.]

Stage	Dilute Concentration (Dilution Rate)	Application Frequency	Application Method	Purpose/Aim
After Seeding	10,000 Fold	Once (1)	Irrigation	Germination Promotion
After Coming out of Leaf Foliage	10,000 Fold	Twice (2)	Foliar Spray	Good Seeding Promotion
At Final Transplanting	10,000 Fold	Once (1)	Irrigation	Rooting Promotion
10 Days After Final Transplanting	10,000 Fold	Once (1) or Twice (2) Every 10 Days	Foliar Spray	Growth Promotion
Head Formation	8,000 Fold	Once (1) or Twice (2) Every 15 Days	Foliar Spray	Quality Improvement
Before Harvest	5,000 Fold	Once (1)	Foliar Spray	Quality Improvement

Standard application amount is 100L per 10a farm field

### C. Recipe for Root Vegetables [Radish, Carrot, Burdock, etc.]

Stage	Dilute Concentration (Dilution Rate)	Application Frequency	Application Method	Purpose/Aim
After Seeding	10,000 Fold	Once (1)	Irrigation	Germination Promotion
After Coming out of Leaf Foliage	10,000 Fold	Twice (2) Every 10 Days	Foliar Spray	Growth Promotion
Thickening	8,000 Fold	Twice (2) or Three (3) Times Every 10-15 Days	Foliar Spray	Yield Increase
Before Harvest	5,000 Fold	Once (1)	Foliar Spray	Quality Improvement

Standard application amount is 100L per 10a farm field

- \* Depending on circumstances, some changes in the usage specified may be required
- \* Conduct complete fertility management since Manda Harvest contains little fertilizer component
- \* When crops are weakened by typhoons, etc., apply 5,000 fold of diluted solution twice (2) or three (3) times consecutively every one (1) to three (3) days

### D. Recipe for Fruit Vegetables [Eggplant, Tomato, Bell Pepper, Cucumber, etc.]

Stage	Dilute Concentration (Dilution Rate)	Application Frequency	Application Method	Purpose/Aim
After Seeding	10,000 Fold	Once (1)	Irrigation	Germination Promotion
After Coming out of Leaf Foliage	10,000 Fold	Once (1) or Twice (2) Every 7-10 Days	Foliar Spray	Growth Promotion
At Transplanting	10,000 Fold	Once (1)	Irrigation	Rooting Promotion
After Transplanting	10,000 Fold	Once (1) or Twice (2) Every 7-10 Days	Foliar Spray	Initial Growth Promotion
After Starting Harvest	8,000 Fold	Regular Application Every 10-15 Days	Foliar Spray, Irrigation	Growth Promotion, Quality Improvement

Standard application amount it 150L per 10a farm field

## E. Recipe for Melons and Fruit Vegetables [Melon, Watermelon, Pumpkin, etc.]

Stage	Dilute Concentration (Dilution Rate)	Application Frequency	Application Method	Purpose/Aim
After Seeding	10,000 Fold	Once (1)	Irrigation	Germination Promotion
After Coming out of Leaf Foliage	10,000 Fold	Once (1) or Twice (2) Every 7-10 Days	Foliar Spray	Growth Promotion
At Transplanting	10,000 Fold	Once (1)	Irrigation	Rooting Promotion
After Transplanting	10,000 Fold	Once (1) or Twice (2) Every 10 Days	Foliar Spray	Initial Growth Promotion
Fruit Thickening	8,000 Fold	Once (1) or Twice (2) Every 10 Days	Foliar Spray, Irrigation	Growth Promotion, Quality Improvement
Before Harvest	5,000 Fold	Once (1)	Foliar Spray	Quality Improvement

Standard application amount is 150L per 10a farm field

- \* Depending on circumstances, some changes in the usage specified may be required
- \* Conduct complete fertility management since Manda Harvest contains little fertilizer component
- \* When crops are weakened by typhoons, etc., apply 5,000 fold of diluted solution twice (2) or three (3) times consecutively every one (1) to three (3) days

## F. Recipe for Rice Paddy

Stage	Dilute Concentration (Dilution Rate)	Application Frequency	Application Method	Purpose/Aim
Sowing	2,000 Fold	Once (1) for 6-12 Hours	Soaking Rice Seed with 1.5 Times of Water	Germination Promotion, Seeding Promotion
Raising of Seeding to Transplanting	5,000 Fold to 10,000 Fold	Twice (2) or Three (3) Times	Foliar Spray or Irrigation : 200 to 300mL per Nursery Box	Growth Promotion, Rooting Promotion
Tillering (50-60 Days Before Heading)	5,000 Fold	Once (1) or Twice (2)	Foliar Spray	Productive Tillering Promotion
Panicle Formation (20-25 Days Before Heading)	5,000 Fold	Once (1) or Twice (2)	Foliar Spray	Panicle Formation Promotion, Yield Rate Improvement
Heading (After Flowering) to Right Before Harvest	5,000 Fold	Once (1) or Twice (2)	Foliar Spray	Yield Increase, Quality Improvement, Ripened Grain Rate Improvement

- Use 30mL of Manda Harvest per 10a farmland after the tillering stage
- It is effective to scatter Manda Harvest diluted solution using a radio-controlled helicopter or conduct a drip irrigation to a paddy field
- A drip irrigation is conducted by dripping Manda Harvest diluted solution when releasing water into a paddy field

- \* Depending on circumstances, some changes in the usage specified may be required
- \* Conduct complete fertility management since Manda Harvest contains little fertilizer component
- \* When crops are weakened by typhoons, etc., apply 5,000 fold of diluted solution twice (2) or three (3) times consecutively every one (1) to three (3) days

## G. Recipe for Citrus

Stage	Dilute Concentration (Dilution Rate)	Application Frequency	Application Method	Purpose/Aim
Budding or Later	10,000 Fold	Once (1) or Twice (2) Every 10-15 Days	Foliar Spray	Growth Promotion
Before Flowering	5,000 Fold to 8,000 Fold	Once (1)	Foliar Spray	Growth Promotion, Bearing Rate Improvement
Young Fruit	10,000 Fold	Twice (2) or Three (3) Times Every 20-30 Days	Foliar Spray	Growth Promotion
Beginning of Coloring to Harvest	5,000 Fold to 8,000 Fold	Twice (2) Every 15-20 Days	Foliar Spray	Quality Improvement (Color, Eating Quality)
Right After Harvest	10,000 Fold	Once (1)	Foliar Spray	Vigor Recovery of Fruit Tree

## H. Recipe for Deciduous Fruit Trees

Stage	Dilute Concentration (Dilution Rate)	Application Frequency	Application Method	Purpose/Aim
Budding or Later	10,000 Fold	Twice (2) or Three (3) Times Every 15-20 Days	Foliar (Trunk) Spray	Growth Promotion
Young Fruit	10,000 Fold	Twice (2) or Three (3) Times Every 15-20 Days	Foliar Spray	Growth Promotion, Quality Improvement
Fruit Ripening	5,000 Fold to 8,000 Fold	Twice (2) Every 15-20 Days	Foliar Spray	Quality Improvement (Color, Eating Quality)
Right After Harvest	10,000 Fold	Once (1)	Foliar Spray	Vigor Recovery of Fruit Tree

- Standard application amount is 300L per 10a farmland. It is effective to apply weaker diluted solution if the application amount is greater than the standard amount

- There is no need to adhere to the dilution concentration if application amount exceeds 300L. In this case, 30mL of Manda Harvest per 10a farmland is sufficient for one application
- \* Depending on circumstances, some changes in the usage specified may be required
- \* Conduct complete fertility management since Manda Harvest contains little fertilizer component
- \* When crops are weakened by typhoons, etc., apply 5,000 fold of diluted solution twice (2) or three (3) times consecutively every one (1) to three (3) days



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