



## Sustainable solutions in food production and harnessing power

INTERNATIONAL SYMOSIUM ON SUSTAINABLE DEVELOPMENT OF THE MEKONG DELTA (SDMD 2022)

## Profile



### **KAWATATE OSAMU**

**22 February 1966 : Born in Fukuoka prefecture, Japan**

**CTO, Director, Member of the Board of Yanmar Holdings Co., Ltd.**

**“I would like to convey our appreciation to Can Tho University  
for giving us the opportunity to make a presentation  
at this SDMD2022 forum.”**



# WHO IS YANMAR

An overview of the Yanmar Group



**WHO**

# Company Overview



President,  
**Takehito Yamaoka**



Founder,  
**Magokichi Yamaoka**

Trade name	<b>Yanmar Holdings Co., Ltd</b>
Head office	<b>1-32, Chayamachi, Kita-ku, Osaka, Japan YANMAR FLYING-Y BUILDING</b>
Founded	<b>March 1912 (110 years since our founding)</b> Founded as YAMAOKA HATSUDOKI KOSAKUSHO
Established	<b>April 2013</b>
Capital	<b>90 million yen</b>
Founder	<b>Magokichi Yamaoka</b>
President	<b>Takehito Yamaoka</b>
Employees	<b>20,744 (As of March 31, 2022)</b>

## Mission Statement



**We strive to provide sustainable solutions  
for needs which are essential to human life.  
We focus on the challenges our customers face  
in food production and harnessing power,  
thereby enriching people's lives for all our tomorrows.**

# Yanmar's Purpose

## A SUSTAINABLE FUTURE

### The Four Societies We Aim to Create

**VISION 01**  
An Energy-Saving Society

**VISION 02**  
A Society Where People Can Work and Live with Peace of Mind

**VISION 03**  
A Society Where People Can Enjoy Safe and Plentiful Food

**VISION 04**  
A Society That Offers an Exciting Life Filled with Rich and Fulfilling Experiences

### Four Business Fields

**Energy Supply**

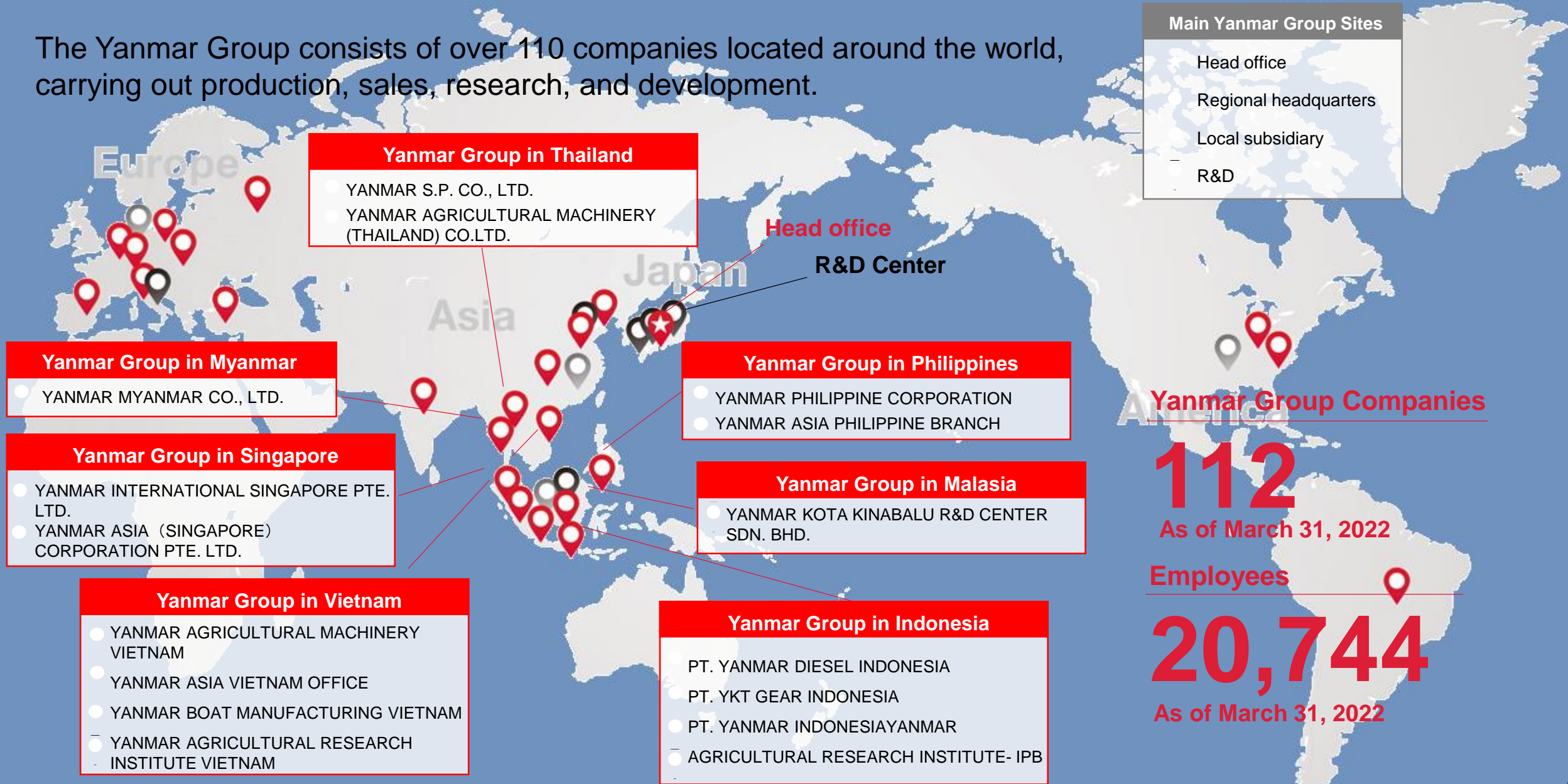
**Social Infrastructure**

**Food Production**

**WAKUWAKU**

# Global Network

The Yanmar Group consists of over 110 companies located around the world, carrying out production, sales, research, and development.





## Seven Business Areas

**Agriculture**



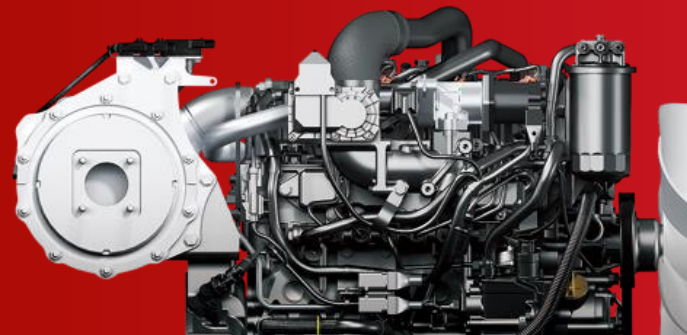
**Marine**



**Construction**



**Industrial Engines**



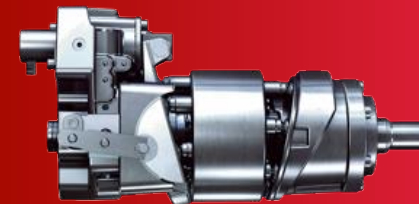
**Marine  
Commercial  
Engines**



**Energy Systems**



**Component**



# YANMAR in Vietnam

# YANMAR agricultural machinery (YAV) Sales and Service Network

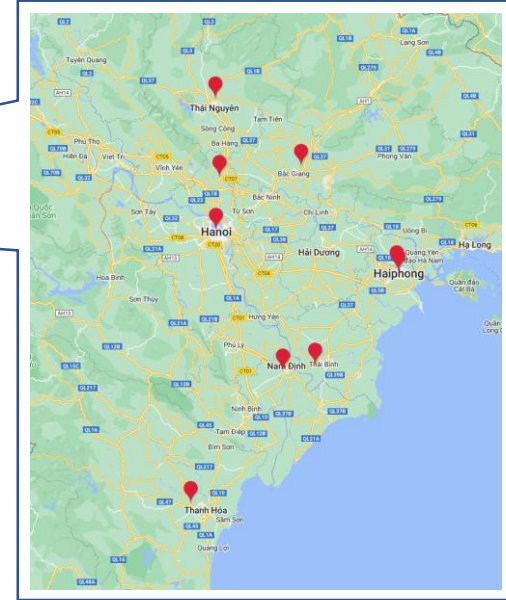
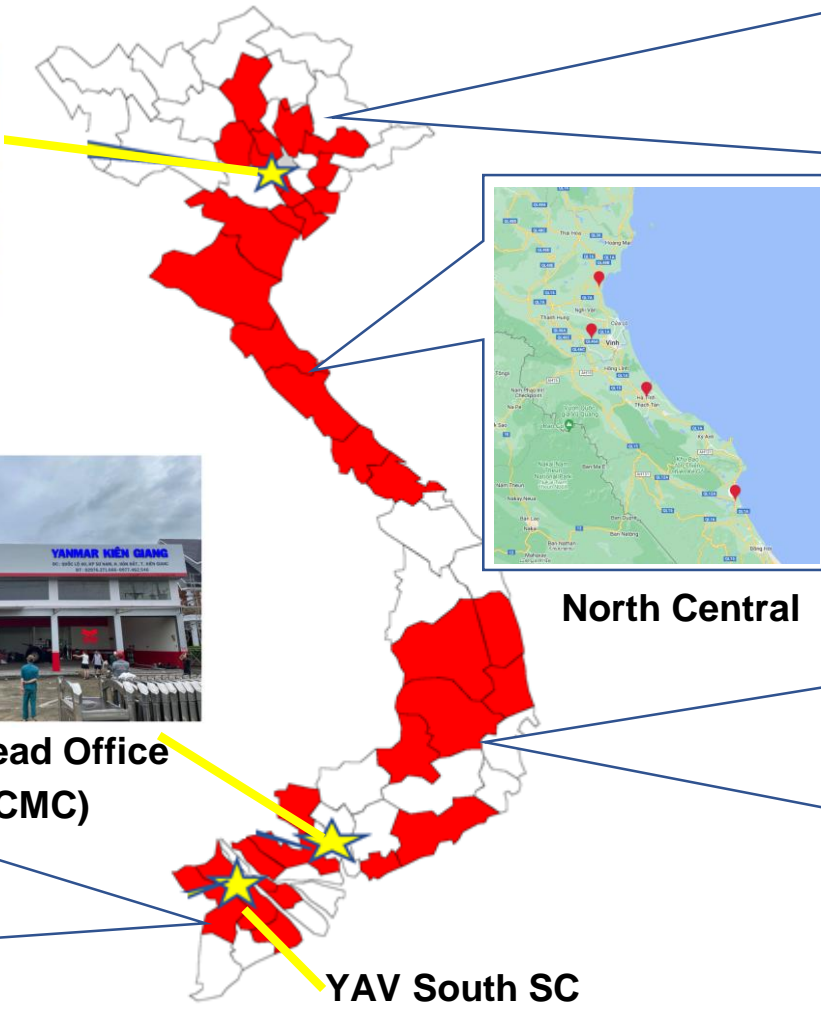


YAV North SC (Hanoi)

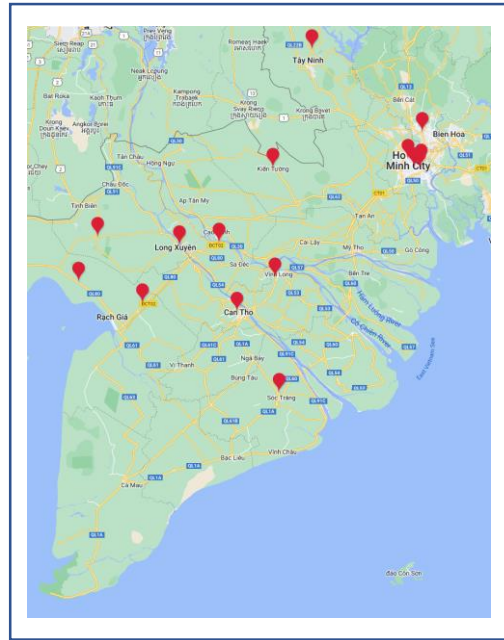


YAV Head Office (HCMC)

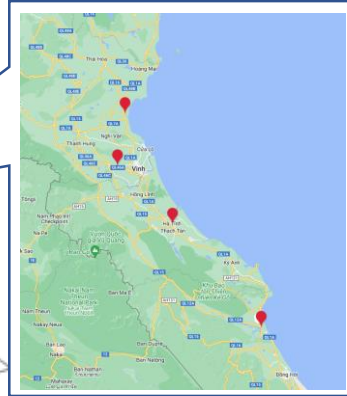
YAV South SC (Long Xuyen)



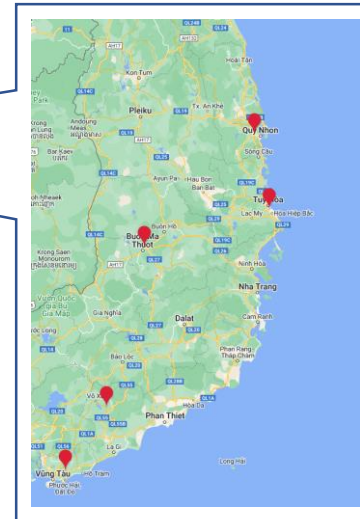
Northeast



Mekong Delta



North Central



Central, Southeast

**30 Dealers from North to South**

# YANMAR agricultural machinery (YAV) Product Lineup

Tractor

26PS ~ 110PS



Combine Harvester 70PS ~ 84.5PS



Rice Transplanter 4row ~ 7row



Small Engines



Generator

Water pump



Power Tiller

Boat propeller drive



# Fostering Culture

## ▶ Football sponsorship



VIETNAM NATIONAL FOOTBALL TEAM TOP STAR PARTNER



# YANMAR agricultural research institute, Vietnam (YARIV)



**Established:** March, 2013

**Address:** Campus 2, Can Tho University



Dr. Trung Chi Thanh

## Machine



## Field Test



## Seminar





# **Sustainable solution in food production and harnessing power**

## SDMD2022 FORUM and Challenges Facing Mekong Delta

### SDMD 2022 OBJECTIVES

**SDMD 2022 International Symposium**, the First Forum in the Regular SDMD Forum (every 2 years) aims to:

- 1 Connect, and share information on current status, potential, challenges of key fields of the MKD in order to the formation of strategies, policies and regulation for sustainable development of the MKD with a vision to 2045.
- 2 Promote collaboration amongst stakeholders in making and implementing research and development projects for the region.

### SDMD 2022 TOPICS

- 1 Human resources for Science and Technology in the Mekong Delta - Current status, strategies and solutions for development.
- 2 Hi-tech agriculture and digital transformation in agriculture - Current status, strategies, solutions in science and technology for development of Mekong Delta
- 3 Marine economy and Circular economy - Strategies and solutions in science and technology for sustainable development of Mekong Delta
- 4 Climate change - Strategies and solutions in science and technology for sustainable development of Mekong Delta
- 5 Digital Transformation for sustainable development of Mekong Delta

### 1. Low sustainability and unstable production\*

- 1) High production cost in agriculture
- 2) Low level of mechanization in rice planting
- 3) Reduction of chemicals in agriculture
- 4) Labor shortage in agriculture due to industrialization
- 5) Outdated agricultural processing technology
- 6) Water shortage and salt damage

### 2. Sustainable farm management\*

- 1) Shift from low-productivity agriculture to high-value-added agriculture
- 2) Resource recycling
- 3) Develop renewable and clean energy
- 4) Reduction of GHG emissions

**Introduce Yanmar's current activities and potentials for sustainable future of Mekong Delta**

\*Source: YARIV analysis from the data of Ministry of Agriculture and Rural Development, etc.



# Implement for spot seeding

## 1. Customer issue

uneven growth, diseases and lodging  
High cost due to sowing a lot of seeds

## 2. Product

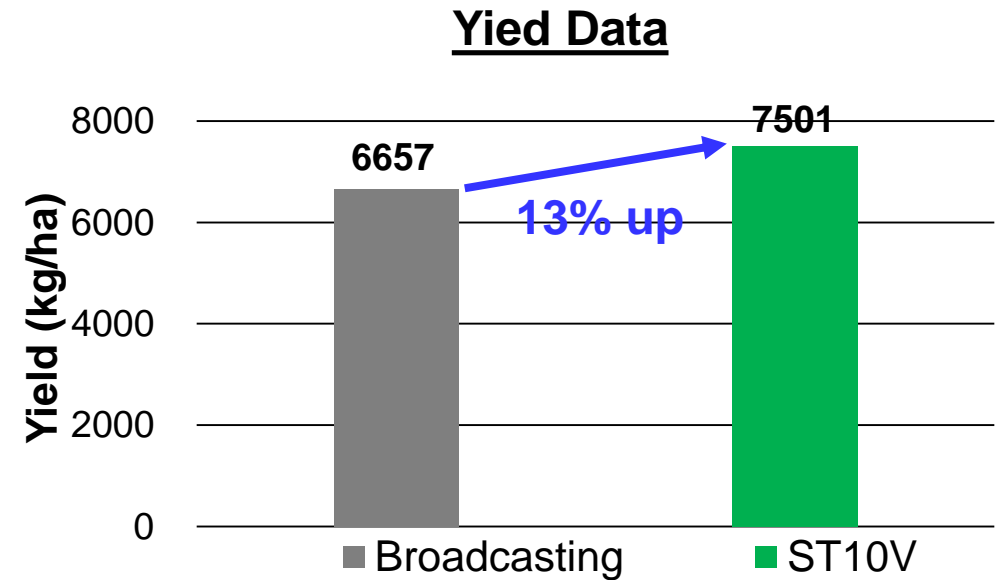
Spot seeder ST10V : Launched in August 2022

## 3. Product effect (Value to customers)

- Avoidance of disease and lodging due to uniform growth by spot seeding
- Stable yield and quality
- Reduce the amounts of seeds.
- Solve the labor shortage by improving efficiency



Thanks to Dr. Thanh and stakeholders in the Mekong Delta



\*Average data of 7 seasons from 2020 to 2022 in Long An, An Giang, and Kien Giang province

# Rice transplanter with fertilizer applicator

## 1. Customer issue

Want more stable and high yield with optimal planting conditions and fertilizer application

## 2. Product

Rice transplanter with fertilizer applicator

**:Launched in 2020**

Thanks to Dr. Thanh and stakeholders in the Mekong Delta



## 3. Product effect (Value to customers)

- Reduce seeds, chemical fertilizer, and pesticide
- Increase farmer's productivity, quality, and profit

Demonstration test result in Tien Giang province in 2019

Contents	Field A (1ha)	Field B (1ha)
<b>Input</b>		
Rice Variety	OM5451	OM5451
Seeds Amount	50kg	150kg
Sowing method	Transplanter with fertilizer applicator	Broadcasting by hand
Fertilizer	2 times/ crop (370 kg/ha)	3 times/crop by hand (410kg)
		▲ 10%
<b>Output</b>		
Yield (t/ha)	6.6	5.5
		← 20% up
Profit (VND)	18,537,000	13,792,000

Collaboration by YARIV, Binh Dien fertilizer Co., and DARD in Tien Giang

# Yanmar SMARTASSIST

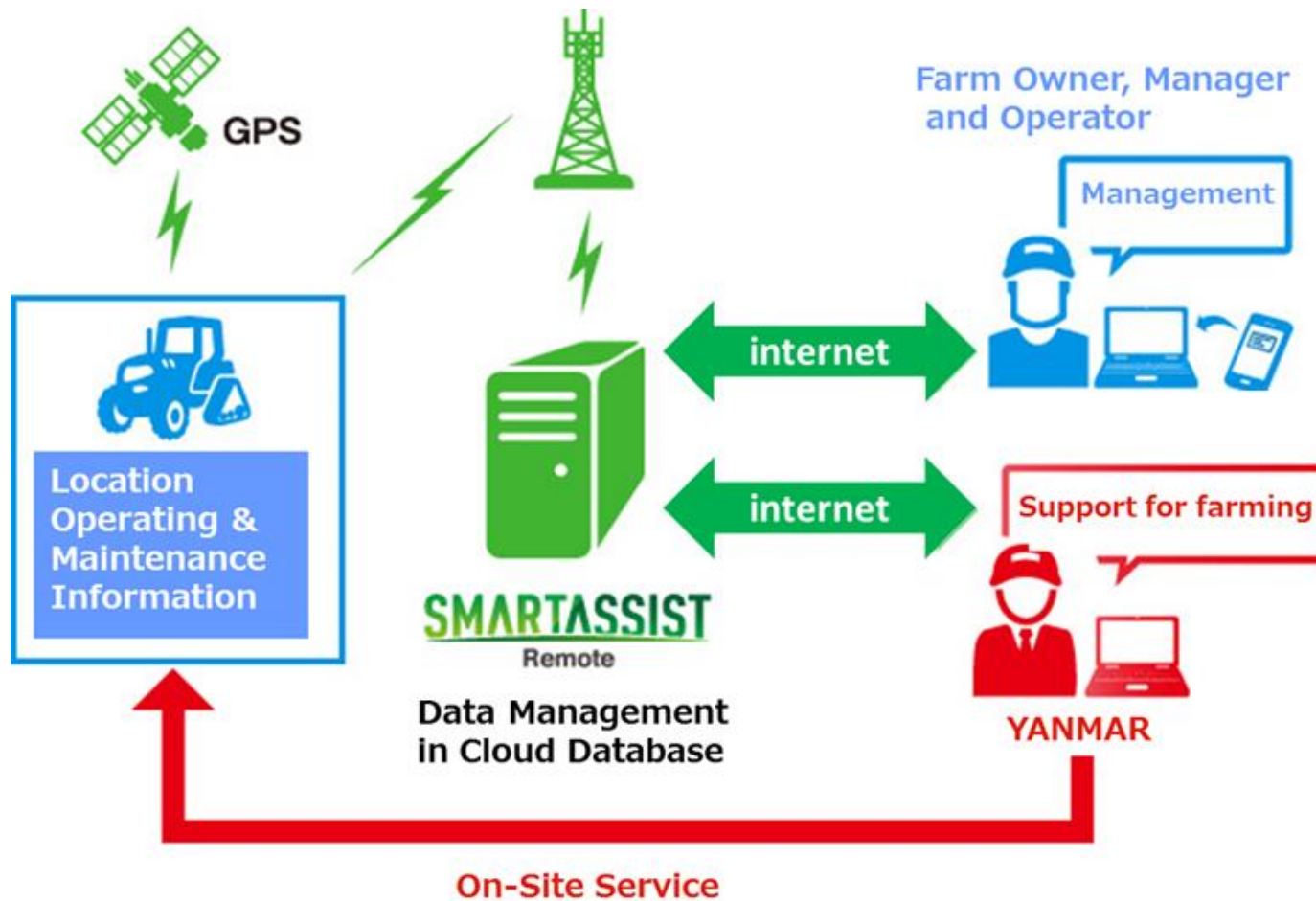
## 1. Customer issue

Want to visualize the operation status of agricultural machine for efficient farm management

## 2. Product

Yanmar SMARTASSIST Remote

Launched : 2013



## 3. Product effect (Value to customers)

Protect equipment and optimize the operational conditions, whilst also averting costly breakdowns.



Measure work area accurately



Easy inspect works

## Robot Tractor

### 1. Customer issue

Labor shortage, labor saving

### 2. Product

- Robot Tractor : **Launched in Japan in 2018**

## ROBOT TRACTOR 無人



### 3. Product effect (Value to customers)

- Anyone can work like an expert
- Hard work fatigue reduction
- Auto straight-running in narrow field and around the ridge
- Double productivity with 1 person can operate 2 tractors at the same time



## Toward resource-recycling in food production

### Product

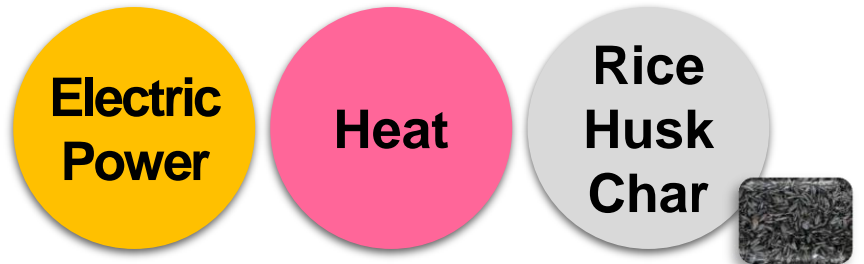
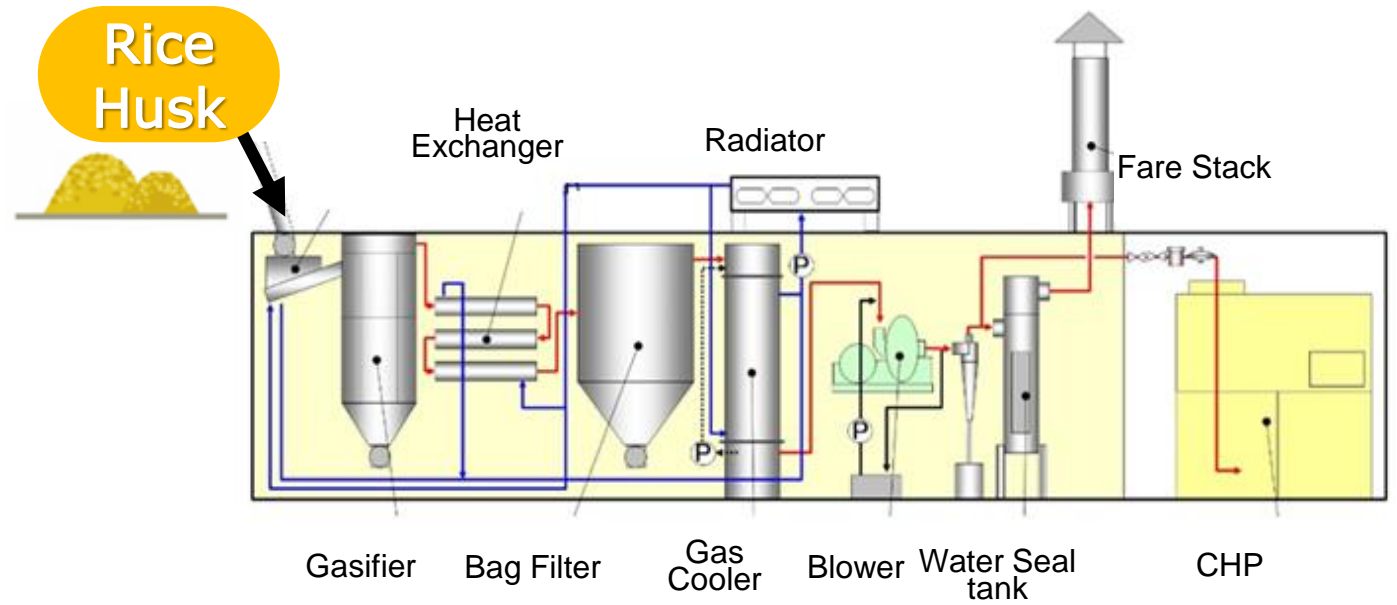
Rice Husk Gasification Trigeneration system



*Developing small-scale packaging system in Japan*

### Product effect (Value to customers)

- Effective use of rice husk char as organic fertilizer
- Provide electric power and heat to milling factory contributing to reduce utility cost and CO<sub>2</sub> emission.



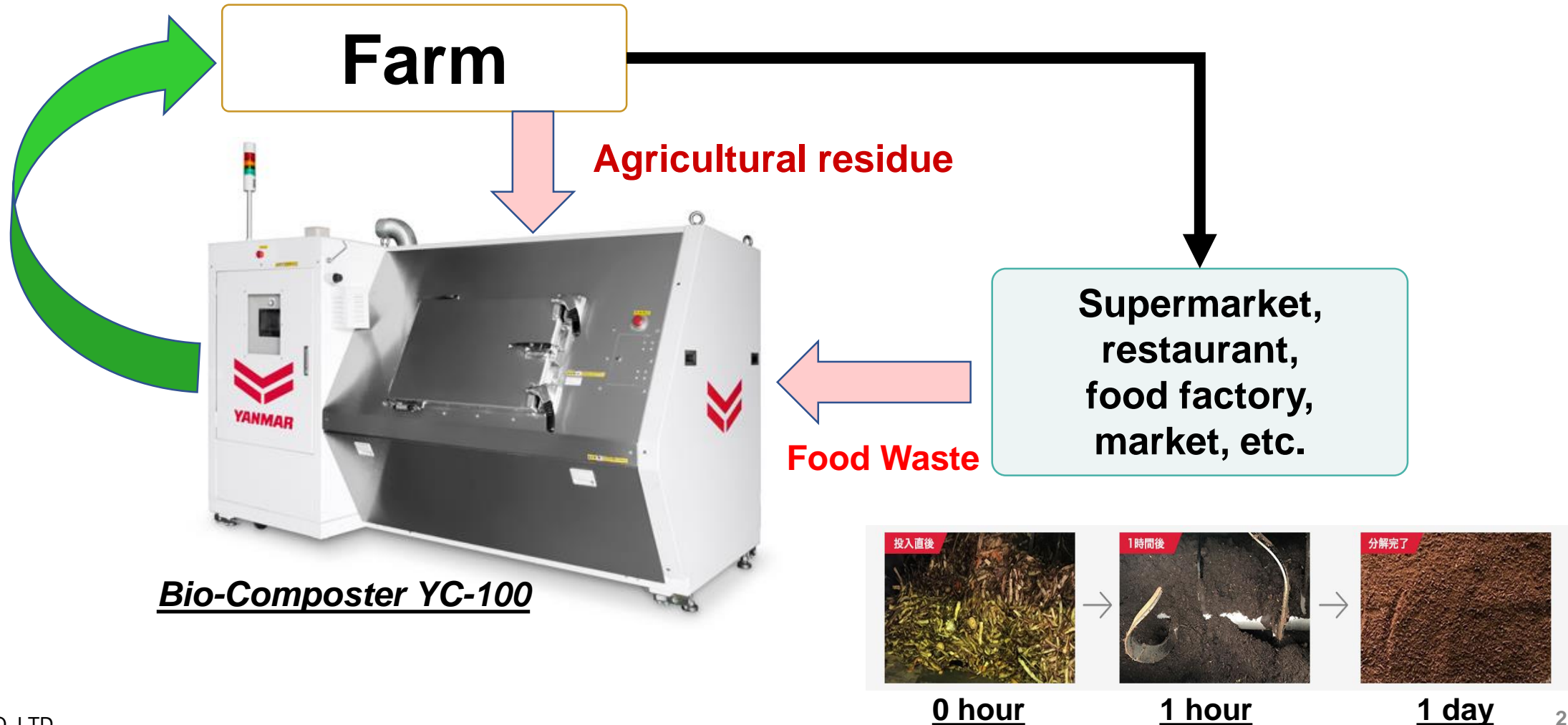
## Toward resource circulation in food production

### Product

Bio Composter : *Launched in Japan in 2021*

### Product effect (Value to customers)

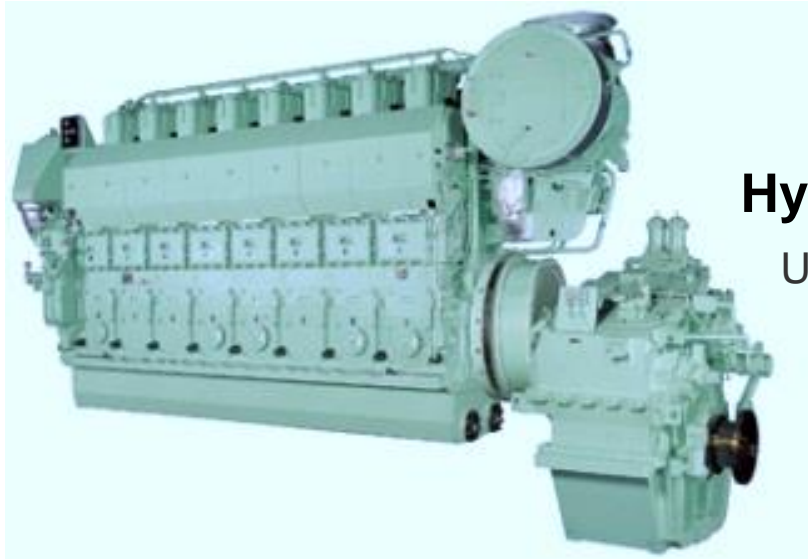
Circulate resources by using food waste and agricultural residue as compost



Potentials

Current activities

# Harnessing power - Green Power Train -



**Hydrogen Engine**

Under development

## Electric mini excavator



## Biogas cogeneration

**Fuel cell  
Boat**



## A SUSTAINABLE FUTURE of Mekong Delta

We believe that the development of the Mekong Delta is essential to support the increasing demand of food in the world.

We, Yanmar, would like to support to develop the Mekong Delta together with Dr. Thanh and everyone else at Can Tho University.

With most advanced technologies, Dr. Thanh and Yanmar will solve problems such as labor shortages, cost reduction, technology transfer, and scale expansion,,, .

We are confident that we can support development of Mekong Delta.

Thank you so much for your attention, today.





## Optimization of fertilizer application potentials

### 1. Customer issue

- Unstable yield and quality due to variation in soil fertility in fields
- High fertilizer costs

### 2. Product    Launched : 2018 in Japan

Remote sensing

- Sensing of growth state that create crop growth map
- Fertilization design system that creates fertilization map
- Variable fertilizer applicator that performs variable fertilization using fertilization map

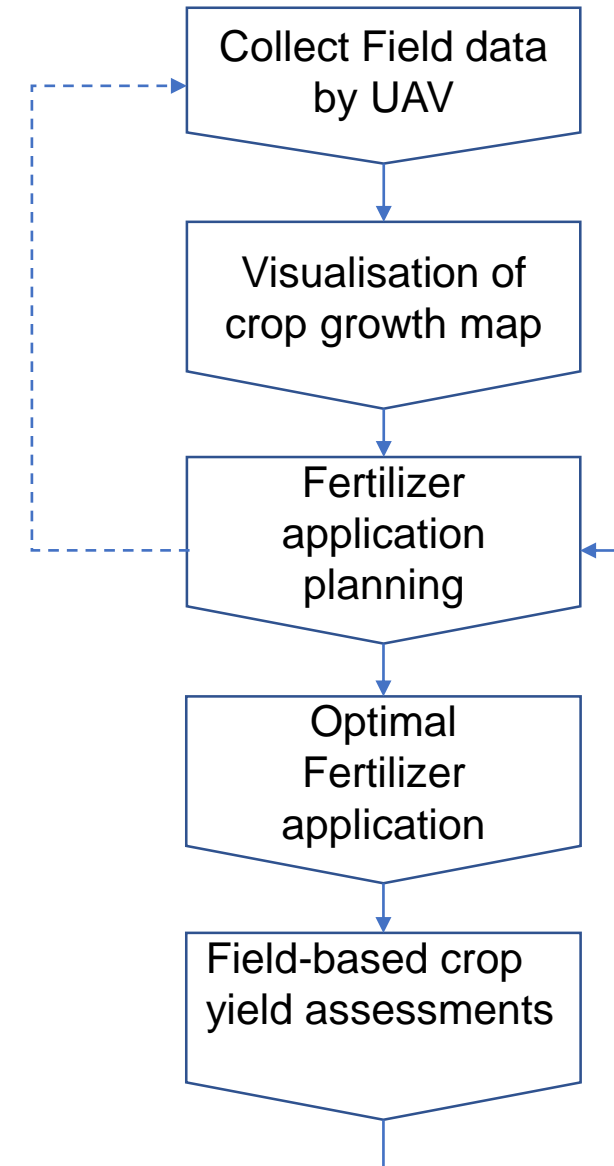
### 3. Product effect (Value to customers)

- Stable yield and quality
- Save fertilizer cost

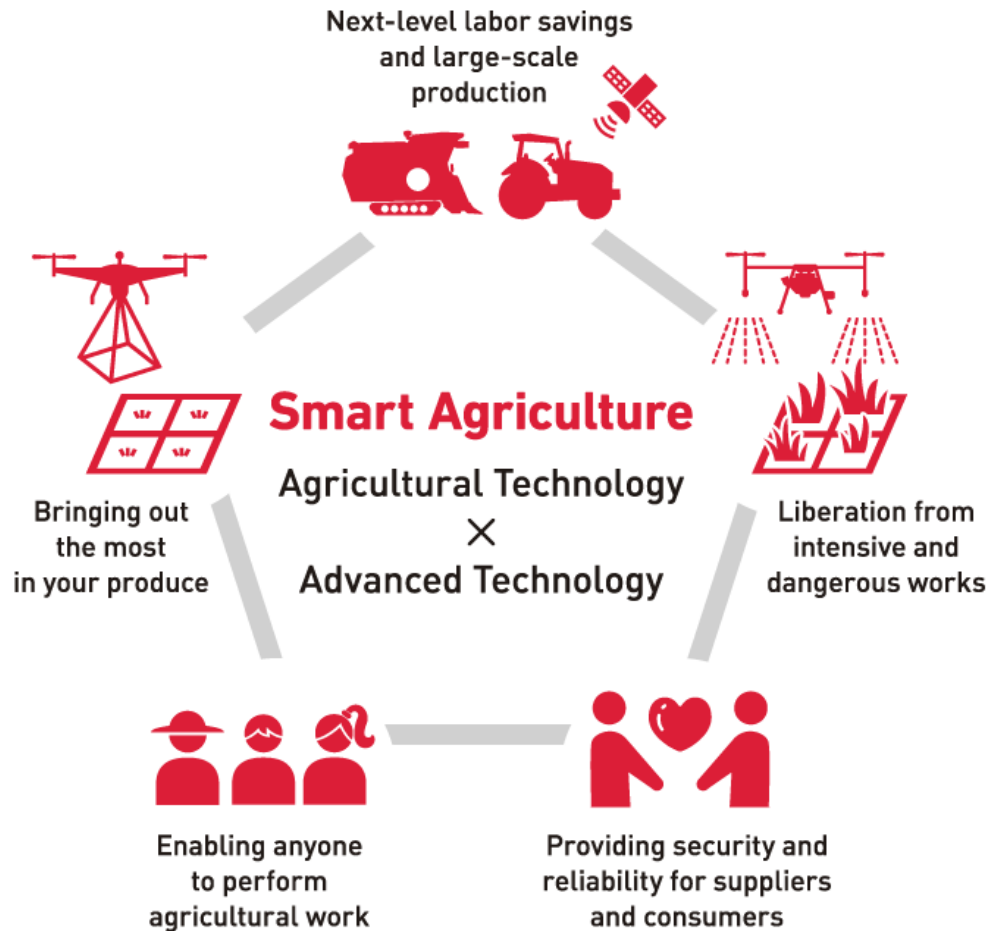
*Voice of customer: Rice Farmer (52ha)*

- - Visualization of field fertility led to soil improvement
- - Essential for farm filed scale expansion

### Remote sensing Procedure



## YANMAR's vision for the future of agriculture



**With a system that considers leading-edge agricultural machinery and data acquisition and operation, we will realize labor-saving, high efficiency, and high precision.**

**We will solve problems such as labor shortages, cost reduction, technology transfer, and scale expansion that agriculture faces.**