SUSTAINABLE FARMING

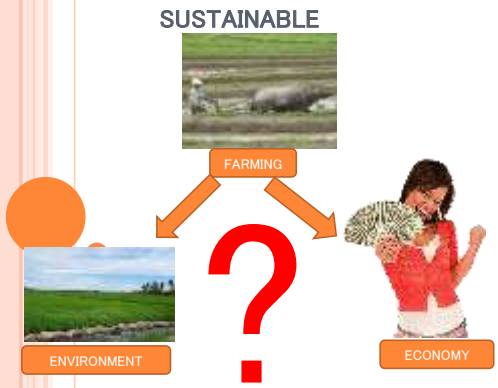
GROUP B : "B 4 d BEST"

1. LIN
2. MARU
3. AKI
4. MEGA
5. DEWA
6. ROBI
7. ARDI
8. RITA
9. NIWAYAN
10. DIKA
11. AYUMI

OUTLINE

- Introduction
- Visited Schedule
- Farming
- Water Quality
- Farmer's Market
- Conclusion

INTRODUCTION



VISITED SCHEDULE

- **FARMING LAND** (Organic Farming)
  1. Yokota Farm (Ryugasaki City)*
  2. Abe Farm (Ushiku City)*
- **WATER ENVIRONMENT**
  1. IKESC : Ibaraki Kasumigaura Enviromental Science Centre. (Tuchiura City)*
  2. KFL : Kasumigaura Furiai Land. (Namegata City)*
- **FARMER'S MARKET**
  1. Sun-Flesh Hasu-no Sato (JA Market) **
     Tuchiura City
  2. ELF – Noukuku : Evidence of Leading Farmer **
     Tsukuba City

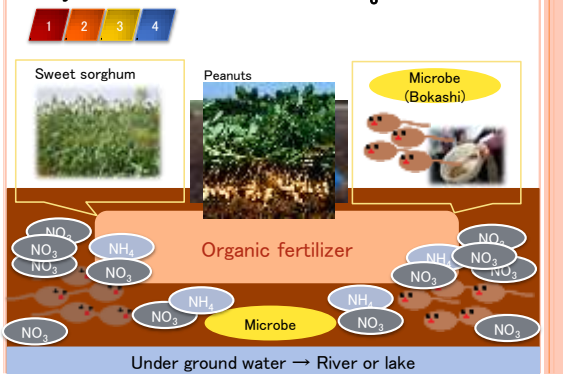
* Water Sampling
** Interview with farmer's & owner

FARM VISITING

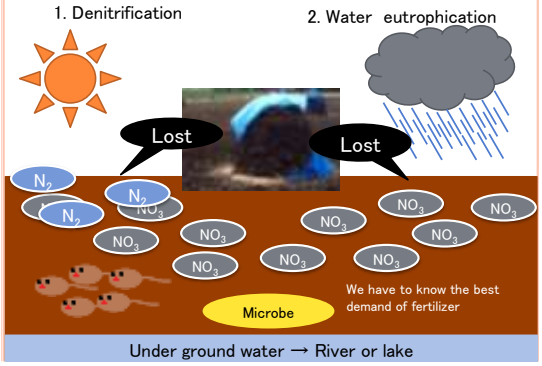
THE DIFFERENT BETWEEN YOKOTA FARM AND ABE FARM

Parameter	Yokota Farm	Abe Farm
Farming Method (sampling place)	Organic	Organic
Commodity	Paddy	Vegetables (Peanut, Radish, etc.)
Yield	**Organic** : 480 ton/10 a **Semi Organic** : 520 ton/10 a	–
Fertilizing Method	using compost as fertilizer	Using bokashi and plant (sorghum) as fertilizer (Cover Crop)
Weed prevention method	Using soil cover to prevent weed	Manually (using tools)
data	NO_3-N o.5 mgL^{-1}	NO_3-N >10 mgL^{-1}

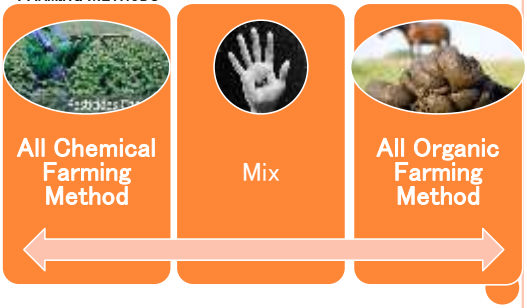
Why Abe farm soil has much NO_3–N?



What is caused by much NO_3–N?



Farming Methods



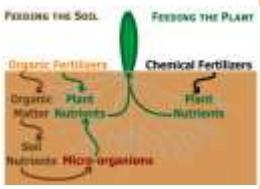
Advantage Vs Disadvantage

All Chemical Farming Method
Advantage :
1. High productivity
2. Efficient for worker
3. Lower product price

Disadvantage :
1. Lack other factors (mineral except N, K, and P) in the soil
2. NO3 and P will flow into ground water rapidly
3. Low quality product for health

Organic Farming Method
Advantage :
1.Consist various factors (mineral such as C, Mg etc)
2. Relatively good for environment
3. Good for health

Disadvantage :
1.Need long time to fertilize
2. Need big amount (not efficient for worker)
3. Low Productivity



People Respond to Organic Product

- **JAPAN**
  1. People have good awareness for healthy food
  2. People can afford to pay more for organic product
  3. Intensively technology increase the efficiency

- **INDONESIA**
  1. Buying ability is still low
  2. Farmer still focus on profit and quantity
  3. Not efficient because lack of technology applied

So..mix Chemical and Organic is better???
where is the best point????
Still don't know the optimum, many factor can effect

Conclusion and Suggestions

Conclusion

Mix chemical and organic farming method is better but the best ratio cannot be decide yet because it effected by many factors

Suggestion

1. Doing precision farming → before planting, check the mineral content of the soil and add only the lack → good for environment and economy side
2. Find proper technology to increase efficient and decrease farming cost for better quality products

WATER QUALITY

WATER QUALITY STANDARD FOR LAKES (natural lakes that have 10 million m^3 of water or more)

Source : Ministry of the Environment Government of Japan

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WATER QUALITY OF KASUMIGAURA LAKE (Kamigeto and Park)

Parameters	Standard	I			II		
		Kamigeto (Under Bridge)			Park		
COD	≤ 8 mg/l (MEGJ)	6	6	5	6	6	6
NO_3-N	≤10 mg/l (USEPA)	5	2	5	5	5	5
NH_4-N	≤ 0.1 mg/l (USEPA)	0.2	0.2	0.2	0.2	0.5	0.2
PO_4-P	≤ 0.1 mg/l (USEPA)	<0.1	0.1	0.1	<0.1	0.1	0.1
pH	6.5 ≤ pH ≤ 8.5 (MEGJ)	9.1			8.6		
EC (mS/m)		26.7			24.6		

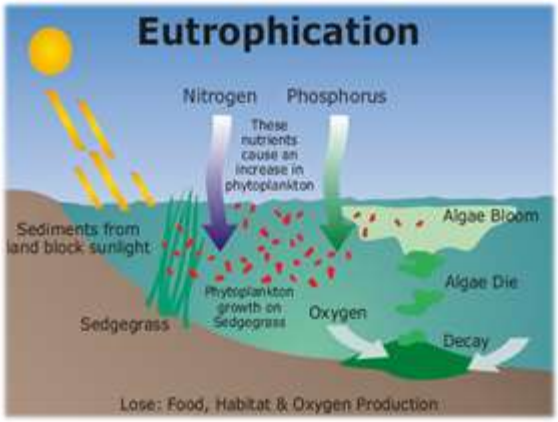
WATER QUALITY OF Yokota Farm and Abe Farm

Parameters	Standard	I	II
		Yokota	Abe
COD	≤ 5 mg/l (MEGJ)	>8	>8
NO_3-N	≤10 mg/l (USEPA)	0.5	>10
NH_4-N	≤ 0.1 mg/l (USEPA)	0.2	0.2
PO_4-P	≤ 0.1 mg/l (USEPA)	0.1	0.1
PH	6.5 ≤ pH ≤ 8.5 (MEGJ)	7.5	7.1
EC (mS/m)		27.4	13.9

EUTROPHICATION

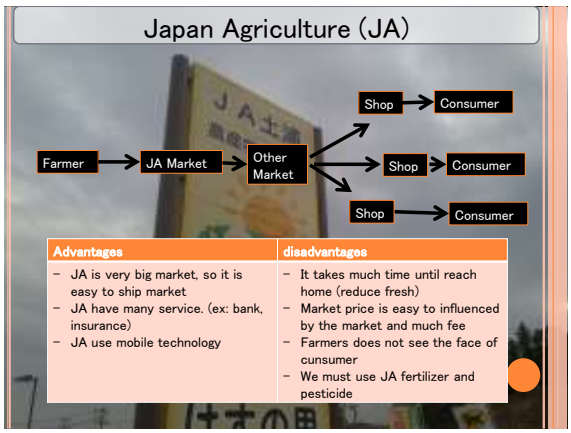
Sources of Cultural Eutrophication

Eutrophication



FARMER'S MARKET

Japan Agriculture (JA)



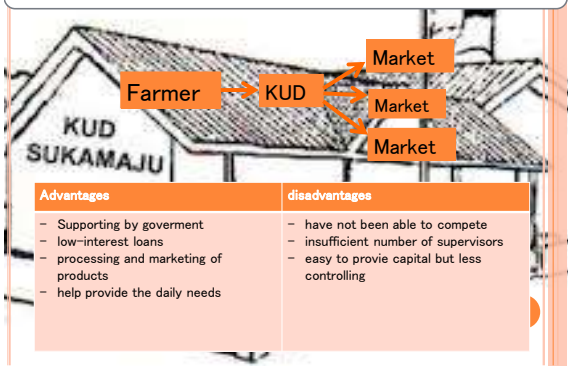
Advantages	disadvantages
– JA is very big market, so it is easy to ship market – JA have many service. (ex: bank, insurance) – JA use mobile technology	– It takes much time until reach home (reduce fresh) – Market price is easy to influenced by the market and much fee – Farmers does not see the face of cunsumer – We must use JA fertilizer and pesticide

Direct shop

Recently Style (Reponsible for Farmer)
Ex : ELF (Evidence of Leading Farmers

Advantages	disadvantages
– Farmer get more income – Decide price – Connect shop directly, so not so much fee – Farmer see the consumer face directly – Reach consumer more fresh – It is possible to ship shop small quantity	– It is difficult to establish, because we must establish a few group – Farmer must gather consumer themself

Koperasi unit desa (KUD)

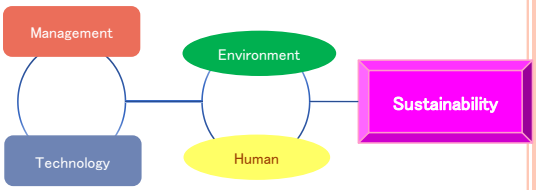


Advantages	disadvantages
– Supporting by goverment – low-interest loans – processing and marketing of products – help provide the daily needs	– have not been able to compete – insufficient number of supervisors – easy to provie capital but less controlling

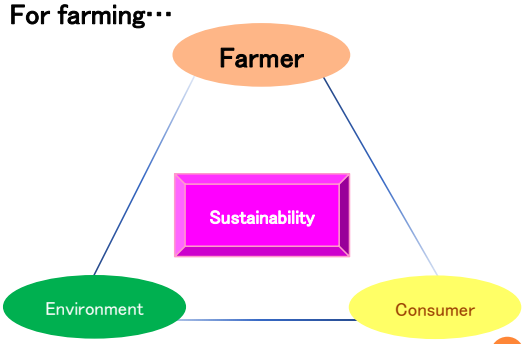
CONCLUSION FARMER MARKETS TO SUSTAINABLE AGRICULTURE

- Young farmers need to establish market, management oneself. Not only cultivate, but also manage.
- The farmer not only need knowledge about agriculture, but also management, news and information

All conclusion



For farming…



THANK YOU FOR YOUR ATTENTION!