

Development of agricultural robot to protect traditional industry in Kawaguchi city

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Background & Objective

What is KAWAGUCHI i-mono•i-waza ?

- Kawaguchi City has an **unique brand authorization**
- Established in 2009
- The purpose is to improve the attractiveness of Kawaguchi City's products quality and skills, and its awareness
- Currently, **65 technologies** registered



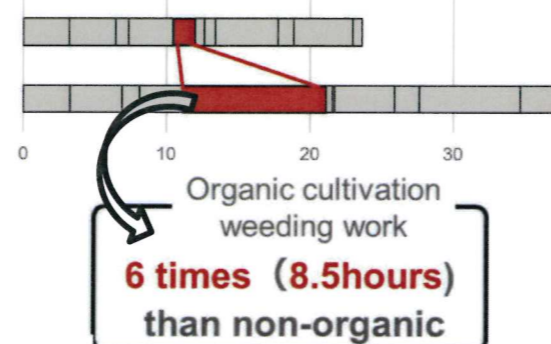
Improve awareness by using Kawaguchi City's unique technology and brand

Strategy

Agriculture → **Business chance** for Kawaguchi City

According to Ministry of Agriculture, forestry and Fisheries (MAFF)

More than 40% research on **sustainable low-input agriculture** such as weed management, soil management



Alternatives and benefits

Alternative

- ① **Moyatto ball**: Rotate the motor inside
- ② **Hose**: Open a hole in the hose and let out air
- ③ **Tug of war**: Move rope up and down
- ④ **Figure**: Moving on the ground
- ⑤ **Circulation**: Stir the paddy field with water flow
- ⑥ **Floating**: Cover water surface and soil

Evaluation criteria

Convenience	Less than 0.5 [kg] (to carry is easy)
Adaptability	Possible to operate at depth of 30 [mm]
Operability	Always keep illuminance of paddy field under 2400 [lux]
Durability	Possible to keep using the equipment for 3 years
Technical	Manufactured by using Kawaguchi City's unique technology and brand

Production of novelty agricultural support products

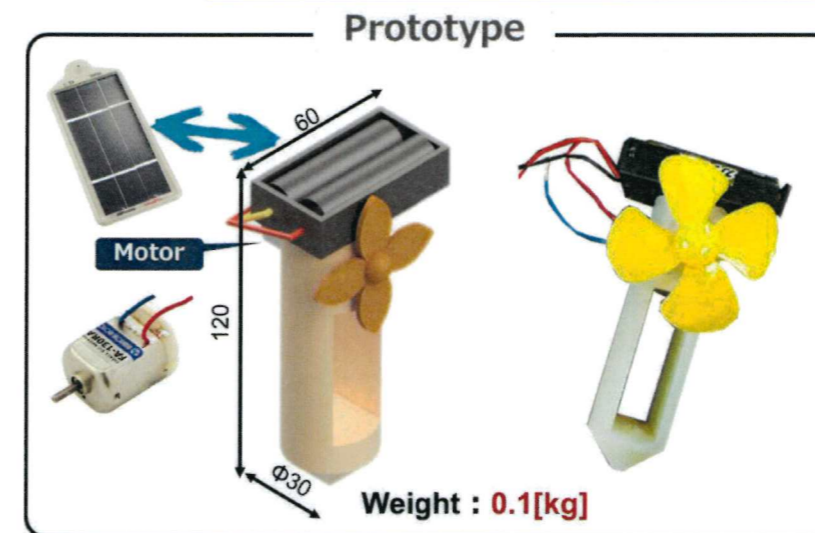
To make good use of Agriculture

Improvement of brand of Kawaguchi City

Benefits

New Alternative

Putting chaff and rice bran on the water

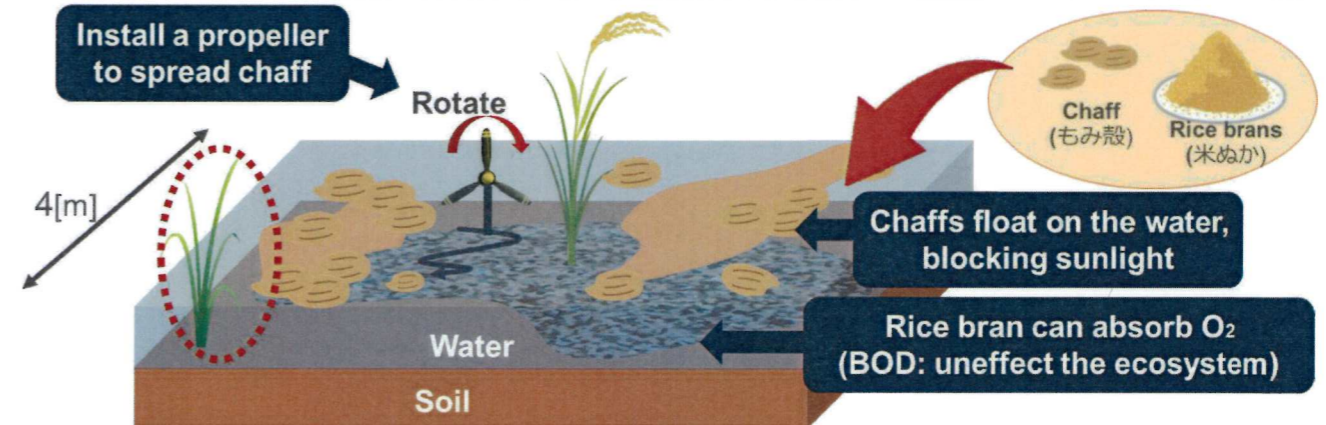


Cost

Name	Cost[¥]
Prototype	34
Motor	276
Battery box	120
Propeller	120
Total	550

Additional parts

Name	Cost[¥]
Solar panel	1145
Battery	70(2本)
Total	1774



Chaff(もみ殻)

- ¥0 or gettable **cheaply**
- **Mass** amount is created (2 million ton per year)
- **Environment - friendly**
- **Not** spoil for several years

Rice bran(米ぬか)

- Existing **farming method** to prevent from growing weeds already
- Environment - friendly
- Ease to get it
- Becoming **fertilizer**

Conclusion

As a result of the experiment
The illuminance can be kept at **2300-1000 [lx]**, and the chaff can be circulated efficiently.

Future Plan

- Improvement of prototype
- Real field experiment
- Invent of a sales plan in cooperation with Kawaguchi City

