



**Department of Agriculture
Regional Field Office No. 2
Northern Cagayan Experiment Station**

RICE- MUSCOVY DUCK FARMING : “A FRIENDLY TECHNOLOGY AND A BUSINESS OPPORTUNITY”

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RATIONALE

- Rice duck system (Mallard) popularly practiced in other countries like Japan, China, Korea and Philippines, to control GAS and usually released after harvest.
- Mallard ducks were raised to produce egg and later sold as *balut* and salted egg.

WHY ?.....Mallard duck vs Muscovy duck

- Muscovy ducks usually raised for both meat and egg production and more domesticated than mallard duck.
- Muscovy ducks is easier to raise and manage
- Ducks has strong instinctive scavenging nature which help control insect pest, weeds and GAS
- Conserve environment and maximize the utilization of Natural Farming Input that support OA
- Duck meat as a source of Omega 3 that is good for the heart.
- Alternative enterprise

Hence, a comparative study was carried out in DA - ASF to verify the efficiency of ducks in the irrigated rice field.



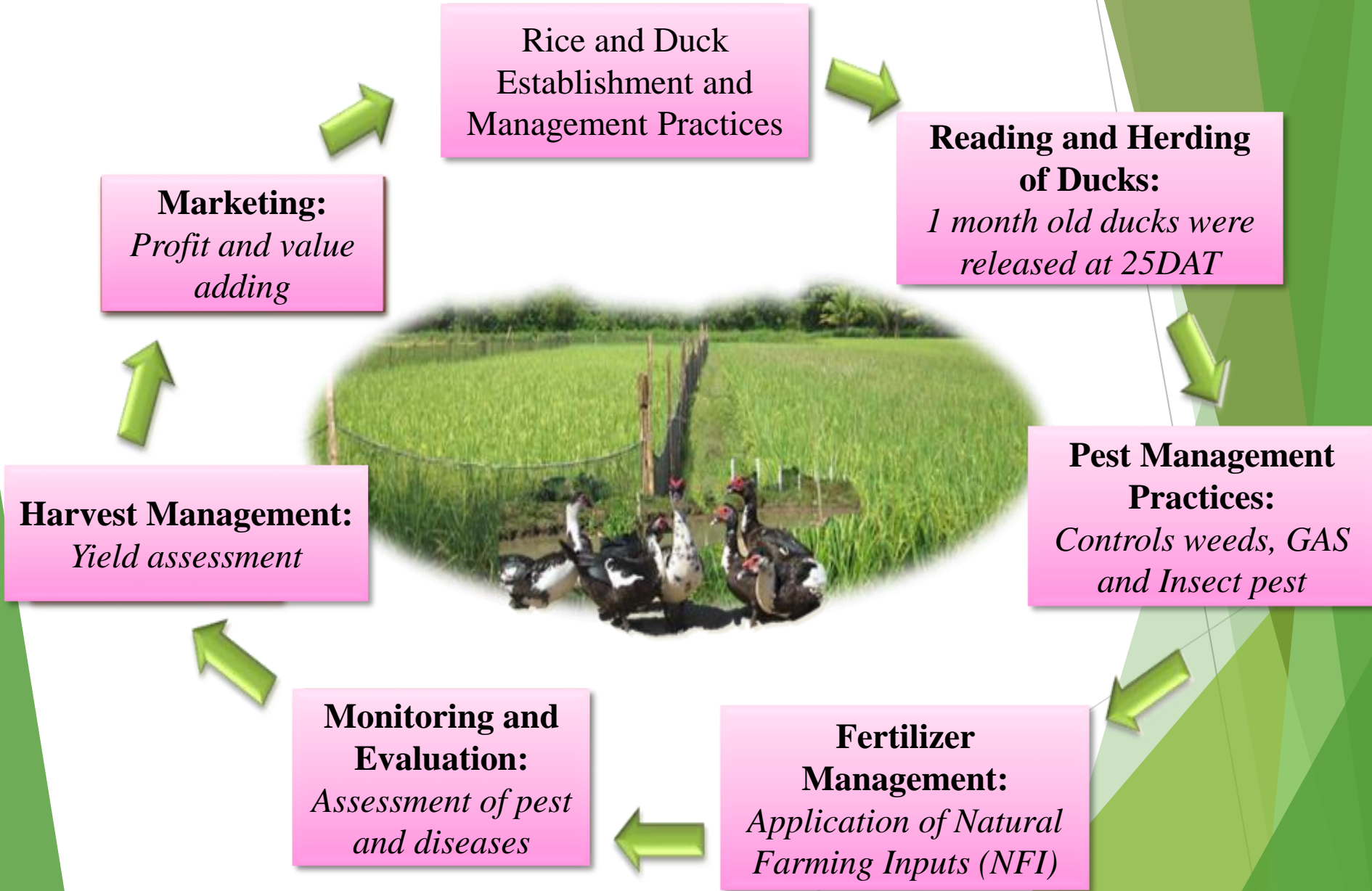
OBJECTIVES

Generally, to increase productivity and profitability of rice farmers.

Specifically:

1. to showcase rice-duck farming system in support to organic agriculture; and
2. to assess the economic analysis of the integrated rice-ducks system and the farmers' traditional practice (rice alone).

METHODOLOGY



Site Selection

- Adequate source of water
- Far from saline water, upland or drought prone areas.
- Straight planting was practiced.
- Duck raising was popular in the locality.

Cultural Management

Rice + Duck

Rice Alone



Management of Muscovy Duck

Fertilizer Management

- Five tons/ha of organic fertilizer
- Supplemental fertilizer and pest management using natural inputs were applied.



Fertilizer Management

Spraying of NFI	Rate	Importance
Fermented Plant Juice (FFJ), Fermented Plant Juice (FPJ),	2 tbs of NFI/liter of unchlorinated water at 3 times a week frequency	<ul style="list-style-type: none"> • Plant growth • Increases plant nutrition through leaves and roots with potassium factors • Resists plant disease and protects plants from insects
Kuhol Amino Acid (KAA)		<ul style="list-style-type: none"> • Good source of Nitrogen • Root hormone
Indigenous Microorganism (IMO)		<ul style="list-style-type: none"> • Speeds plant Growth
Oriental Herbal Nutrients (OHN)		<ul style="list-style-type: none"> • Control insect pest and diseases



Spraying of FFJ,FPJ, IMO as foliar fertilizer and OHN as a source of Botanical pesticide in controlling pest and diseases occurrence .

Weed Management and Insect Pest Control

No herbicide application or pesticide application done. The ducks were herded in the field during the tillering unto vegetative stage of the crop to control the emergence and growth of weeds, GAS and insects with a rate of 200 ducks/ha.



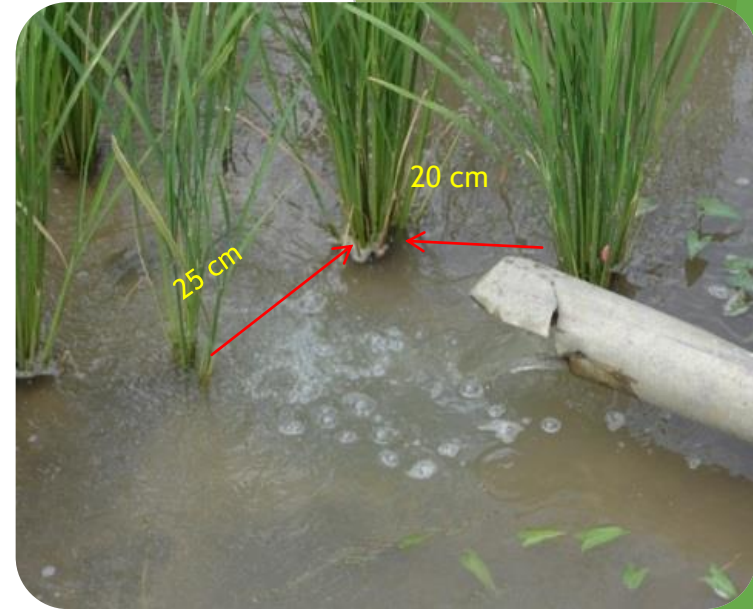
Water Management

Water was maintained at 2-5cm level throughout the growing season to facilitate tillering.



Distance of Planting

Distance of planting was 25cm x20cm to allow and maximize the movement of ducks in the field.



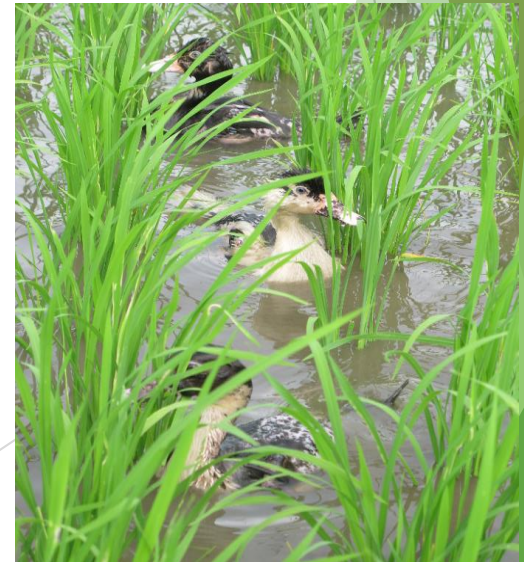
Age of Duck/Duck Density

25 days after transplanting, 1 month old ducklings were released in the field at the rate of 200 birds per hectare.



Grazing Frequency of Duck

1. For the first three to five days, ducklings were kept in the field for 2–4 hours a day.
2. Ducks were allowed to remain in the field from morning to evening.
3. Proper measures were taken to protect the ducklings from predators, such as net enclosure and caretaker.
4. Upon reaching three months old, ducks were removed from the rice field during flowering stage. These ducks will be used for the next cropping season as breeder or sold live or cooked as additional income.



Care and Maintenance of the Mallard Duck

1. Housing was provided to keep them from astray animals like dog, and to keep them warm.
2. Supplemental food like forages (20%) mixed with rice bran (20%), palay (50%) and corn (10%) was provided.
3. Regular clipping to control their flying to avoid lost of ducks.
4. Provision of pond as natural habitat for ducks.



HIGHLIGHTS OF RESULT

Soil Test Result

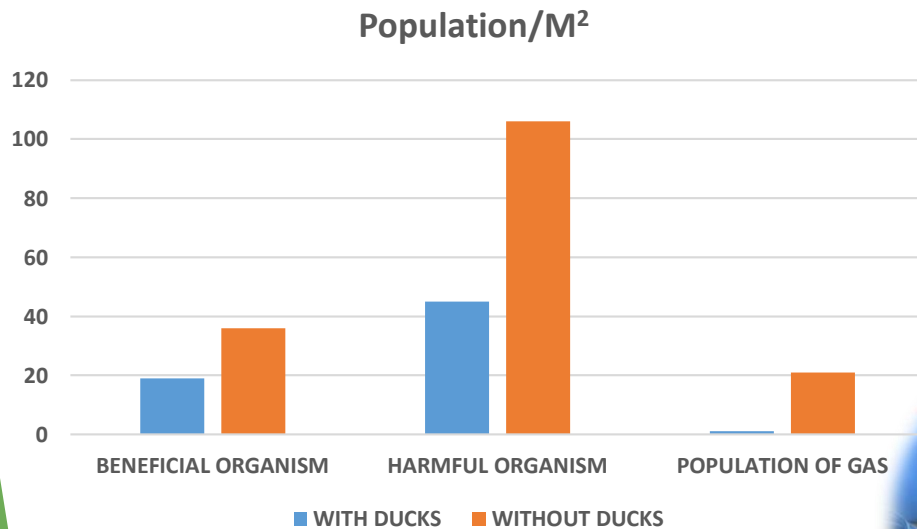
Based from the result of the soil analysis, after 1 cropping season:

- The difference of P & K in the two plots may be attributed to the droppings of the ducks wherein the presence of ducks contributed to the increased in soil nutrients.
- There was no difference in nitrogen requirement, hence, the experimental area is under conversion period.

Season	DS	WS
First cropping season	80 – 20 – 45	60 -20 - 45
After two cropping season (Without duck)	100 – 30 – 60	80 – 30 – 60
After two cropping Season (With Duck)	100 – 20 – 45	80 – 20 - 45

Insect Pest Assessment

- Tolerable level of insect pests' damage was observed from vegetative to reproductive phase of the rice crop period. The damage was 2.92% which is lower than the intolerable level of infestation (10%).
- Organic pesticide was employed. (OHN)
- Population of GAS was controlled at 95%.



Summary of Yield and Yield Components

- Integrating ducks in irrigated rice ecosystem is comparable in yield with rice alone.

	Average Number of Panicle/ m ²	Average Number of Filled grain/panicle	% filled grain /panicle	Weight of 1000 grains (grams)	Yield per Hectare (Ha)
Rice + Ducks	188	113.5	81.7	25.5	4.10
Rice Alone	208	105.6	75.7	25	4.06



Economic Analysis after 2 Cropping Season (2013 WS–2016 DS)

PARTICULARS	MUSCOVY DUCKS	RICE
Material Cost	71,800	50,000
Labor Cost	35,780	30,000
TOTAL PRODUCTION COST	107,580	80,000
GROSS INCOME	339,400	138,040
NET PROFITS	231,820	78,640
Return per Peso Cost	2.15	0.98

Field Day and Promotion of Duck Recipes



CONCLUSION

- ❑ The results signifies the efficiency of integrating ducks in the irrigated rice ecosystem is comparable in yield with rice alone. Income of the farmer had increased. The return per peso of cost of rice-duck was 2.15 compared to 0.98 for the conventional method.
- ❑ Significantly reduced the population of golden apple snail (GAS) into 95% during tillering stage of the crop that results to the good number of tillers.
- ❑ The population dynamics of harmful and beneficial organism did not affect the yield of rice. Only 2.92% damage was observed.
- ❑ Improved the fertility and structure of the soil that were attributed to the droppings of the ducks that gives additional nutrient to the soil.

RECOMMENDATION

- Establish links with different stakeholders by means of duck dispersal.
- Promotion and strengthening in the production of ducklings by the hatchery owners.
- Build-up community awareness to involve more farmers through conduct of field day.
- Conduct of trainings to farmers on the technology of rice duck integrated farming system.

Have a
quack - quack
Day!

