



SHUKAKU RIKI “POWER HARVEST” BIO FERTILIZER

SHUKAKU RIKI FOR CORN
(ZEA MAIZE) ORGANIC FARMING
PROTOCOL

RATIONALE

- Corn production is one of the most important cereals growth from the time of the Spaniards colonization in the Philippines. White, yellow or hybrid Corn is suited under Philippine climatic and topographical conditions.
- The crop is grown year-round depending on the soil characteristics and water resources.
- The availability of hybrid, high yielding varieties and appropriate technologies, crop adaptability, farmers acceptability and the versatility of its usefulness as food, feed, décor, fertilizer among others make white or yellow corn an additional source of income of the farmers.

LAND PREPARATION

- Selection of Farming site requires also various checklist prior to engage and start a farming business. First a good water source neither a river or irrigation type. Good topography and accessible farm to market road. Since Philippines has good phenological and topographical climatic environment that favors in farming business it is huge advantage for farming.
- Cultivate the soil which is friable prior to plant a corn. Soil analysis such as Ph, Organic matter, trace elements and acidity is required for laboratory testing. It is much easier to determine the required application of soil ameliorance in favor of plant nutrition balance.
- The importance of Bio fertilizer as soil activator, enhancer and soil borne disease inhibitor provide best result. There are many essential components of SHUKAKU RIKI that boost the plant while in its growing stage. One factor is providing soil conditioning as activator, improve soil PH and inhibits soil borne diseases. The presence of essential microorganisms, fish oil, alginic acid and liquid form of manures, NPK and trace elements are easily uptake by the plant are sufficient to improve plant growth and development.

PROCEDURES

- ❖ **SHUKAKU RIKI** is a liquid form of Bio fertilizer that easily incorporate during preparation and it is mix with clean water. Recommended Mixing rate 10 ml pure **SHUKAKU RIKI** solution in every 1 liter of water 2 liters pure solution every 1 drum (200 liters) of water. A 1 hectare required 3 drums (600 liters of solutions) or 37.5 knap sacks sprayer. This application prior during seed sowing when furrows/ridges are provided.

- ❖ On the 10 and 25 days after planting (DAP) application recommended rate is adjusted and lower to 5 ml pure Shukaku Riki solution in every 1 liter of water or 1-liter pure solution every 1 drum (200 Liters) of water. A total of 2 drums (400 liters of solutions) or 25 knap sacks sprayer.
- ❖ Best application of Shukaku Riki solution after which land preparation followed by furrowing/ridges are completed prior to seed sowing/planting.
- ❖ By using the knap sack sprayer fill with solutions, deliver spray on the furrows/ridges provided with a tantamount moisture enough to absorb in the soil. Repeat every furrows/ridge until the entire area is completed.

APPLICATIONS

A. Drenching/spraying

1. After land preparation

- ❖ Best application of Shukaku Riki solution by spraying/drenching methods after which land preparation completed followed by furrowing/ridges are provided/ completed prior to seed sowing/planting.

2. At plant maintenance

- ❖ Apply solutions on young corn plants using knap sack sprayer spread completely covered the entire space around the stems /plant during 10 and 25 days after planting (DAP).

NUTRITIONAL APPROACH

- ❖ We strongly considered and as recommended SHUKAKU RIKI as Bio Fertilizer and as soil activator with Fish oil, Alginic acid, and liquid organic manures (NPK) plus trace elements respectively.
- ❖ In this event, the key role of Bio Fertilizer restores the soil from further degradation.

PATHOLOGICAL APPROACH

- ❖ The presence Bio organism as major component of Shukaku Riki become the inhibitor to all types soil borne diseases. The essential organisms provide a broad spectrum to protect the causal organism by attacking the host plant during early growth. Most soil borne diseases are damping off and most common fusarium species.

MIXING PROCEDURES

- ❖ Prepare empty containers @ 60- or 200-liters volume capacity where pure solutions and water can be mix. At the recommended rate mention above. There should be enough empty containers for convenient rotations and distribution of stocks solution during treatment activities. Always required to conduct a water PH analysis in every water solution used to determine if the water source has a good PH level as for reference during the actual mixing made.
- ❖ Calibrate the pure solutions in accordance with the above mention recommendation rate and properly mix into prepare empty container that filled with water.

REMINDERS:

- ❖ Agitate constantly the solution prior to or before applied every case/plant. Mixed solution must not leave at open space under direct sunlight.

RESTRICTIONS:

- ❖ Please refrain from using of chlorinated water as mixing solutions for us to avoid unnecessary problem when it regards to Bio organism performance. This may disintegrate their structural /physical formation as they are in a form of cell structures. But nevertheless, they can stand /tolerate chemical toxicities as unique family of bacteria that had especial characteristics among bacterial species in nature.
- ❖ Containers containing with pure solutions must keep in cool and safe place and avoid excessive expose in open sunlight. Must keep the cover cap close tightly before and after used. All utility containers for SHUKAKU RIKI used must keep clean before and after usage. Utility containers are used strictly for Shukaku Riki solutions only.

PLANTING ESPCIFICATION

- ❖ Row Spacing: 0.75 to 0.85 meters
- ❖ Plant Spacing: 25 cm to 30 cm between plants with 2 to 3 plants per hill.
- ❖ Seeding Depth Early plantings: no deeper than one inch; later plantings: 1 to 2 inches – plant more deeply on lighter soils.

PEST AND DISEASED MANAGEMENT

A. PEST AND DISEASE MONITORING

- ❖ Early monitoring or identifying the common Pests and Diseases of rice could make a big help to control the spread and becoming major constrain in the end.
- ❖ Proper timing application of such control also contribute of good effect to minimize the infestation.
- ❖ Organic Pesticide, bactericide and fungicide is highly recommended as preventive measures. (Kindly ask or inquire the technical personnel for proper guidance and usage.)

TABLE 1. RECOMMENDED RATE AND VOLUME OF SOLUTIONS/HECTARES USE FOR CORN PRODUCTION

CROP	PARTICULAR	METHOD/ APPLICATION	RATE ML/ ILTR WAT	RATE 1 LITER PURE SOLUTION/ 200 LITERS WATER	VOLUME OF SOLUTIONS/LI TERS/HA	DAYS GAP	FREQUEN CY/CYCLE OF APPLICATI ON
WHITE/ YELLOW HYBRID CORN	AT PLANTING	FURROW/RIDGES DRENCHING/ SPRAYING	10 ML/SHUKAKU RIKI	8 L	400 LITERS	During planting only	0 - AGE
WHITE/ YELLOW HYBRID CORN	MAINTENANCE/ AMELIDRANCE	ON PLANT STEM SURROUND DRENCHING/ SPRAYING	10 ML/SHUKAKU RIKI	1 L	200 LITERS	10 DAYS AFTER PLANTING (DAP) AS FOLIAR SPRAY	10
WHITE/ YELLOW HYBRID CORN	MAINTENANCE/ AMELIDRANCE	ON PLANT STEM SURROUND DRENCHING/ SPRAYING	10 ML/SHUKAKU RIKI	1 L	200 LITERS	25 DAYS AFTER PLANTING (DAP) AS FOLIAR SPRAY	25
			TOTAL VOLUME =	10 LITERS	14,000 LITERS/ 7 DRUMS	25 DAYS	25

TABLE 1. ECONOMIC COST, LABOR AND MATERIAL ANALYSIS PER HECTARE FOR CORN PRODUCTION

PARTICULAR	OPERATION	MANPOWER/CULTIVATION/MATERIALS/BIO FERTILIZERS	FREQUENCY/APPLICATION /VOLUME/RATE	DAILY RATE/ UNIT PRICE	AMOUNT	
AT LAND PREPARATION	CULTIVATION: A. Plowing B. Harrowing C. Furrowing OR D. Plowing E. Harrowing F. Furrowing	FARM TRACTORS	1 Pass 1 Pass 1 Pass 1 Pass	2,500.00 2,500.00 1,000.00 3,000.00	5,000.00	
		CARABAO MANUAL CULTIVATION	1 Pass 1 Pass	1,000.00 1,000.00	6,000.00	
	BIO FERTILIZER APPLICATION/ AFTER LAND PREP.	BASAL SPRAYING/DRENCHING	8 L	ONCE	750.00	6,000.00
	CORN SEEDS	PLANTING MATERIAL	PIONEER/BIOSEED	9 KILOS	4,500.00	9,000.00
	BIO FERTILIZER APPLICATION/ AFTER LAND PREP.AT FURROWS/RIDGE	BASAL SPRAYING/DRENCHING	2 MP	1 PASS	400.00	800.00
	PLANTERS	SEED SOWING	4 MP	ONCE	400.00	1,600.00
BIO FERTILIZER APPLICATION	BASAL SPRAYING/DRENCHING	2 L	15 DAYS (15 AND 30 DAT)	750.00	1,500.00	
WEED MANAGEMENT	MANUAL WEEDING AT 4DAYS CYCLE X 2 ENTRY	4 MP	15 DAYS (15 AND 30 DAT)	400.00	6,400.00	
PEST AND DISEASE MANAGEMENT	ORGANIC INSECTICIDES /FUNGICIDES SPRAYING AT 5 CYCLES AT 7 DAYS GAP	1 MP	7 DAYS 7-14-21-28 AND 35 (DAT)	400.00	1,600.00	
FOLIAR APPLICATION	SPRAYING AT 4 CYCLES AT 7 DAYS GAP	1 MP	7 DAYS 7-14-21-28 (DAT)	400.00	1,600.00	
ORGANIC FOLIAR	SUPPLEMENTAL	4 L		500.00	2,000.00	
ORGANIC INSECTIDIE	INSECT CONTROL	2 L		1,000.00	2,000.00	
ORGANIC FUNGICIDE	FUNGI DISEASES CONTROL	2 L		1,200.00	2,400.00	
HARVESTER	HARVESTING	6 MP		400.00	2,400.00	

LOT/PARCEL	RENTAL/LEASE	ANNUALLY	1 YEAR /CONTRACT	20,000.00/2 CROPPING/ANNUAL	10,000.00
MISCELANEOUS EXPENSES	MOBILIZATION/FUEL/OTHERS				4,500.00
TOTAL COST MATERIAL AND LABORS	WITH CARABAO USED				57,800.00
TOTAL COST MATERIAL AND LABORS	WITH FARM TRACTOR UNIT USED				56,800.00
GROSS AMOUNT	At 7.00/kilo x 11,875 kilos in (kernels)	At 250grams/kernel x 47,500 pieces/has.	At 95 % harvest turn over		83,125.00
<u>NET PROFIT BEFORE TAX</u>	With Farm tractor With Carabao used		PERCENTAGE :	0.31 % 0.30 %	26,325.00 25,325.00

COMPUTATIONS OF AVEARAGE COSTS AND RETURNS

The sum of all costs obtained from all sample in the farm comprised the total costs. Then, the total costs of producing corn obtained from sample the area were aggregated to come up with the overall total. Finally, the total costs of producing corn in all area were summed up to get the total from 1st harvest up to the last cropping season.

AVERAGE COTS AND RETURNS WERE COMPUTED PER HECTARE ON PRODUCTION FOLLOWS:

$$\text{PER HECTARE} = \frac{\text{TOTAL VALUE INPUT OT OUTPUT}}{\text{TOTAL HARVEST AREA/AMOUNT}}$$

The indicators of profitability were derived using the following computational procedures:

1. Gross Returns = Production x Farmgate Price
2. Returns Above Cash Costs = Gross Returns - Cash Costs
3. Returns Above Cash and Non-Cash Costs = Gross Returns - (Cash Costs + Non-Cash Costs)
4. Net Returns = Gross Returns - Total Costs
5. Net Profit-Cost Ratio = Net Returns ÷ Total Costs