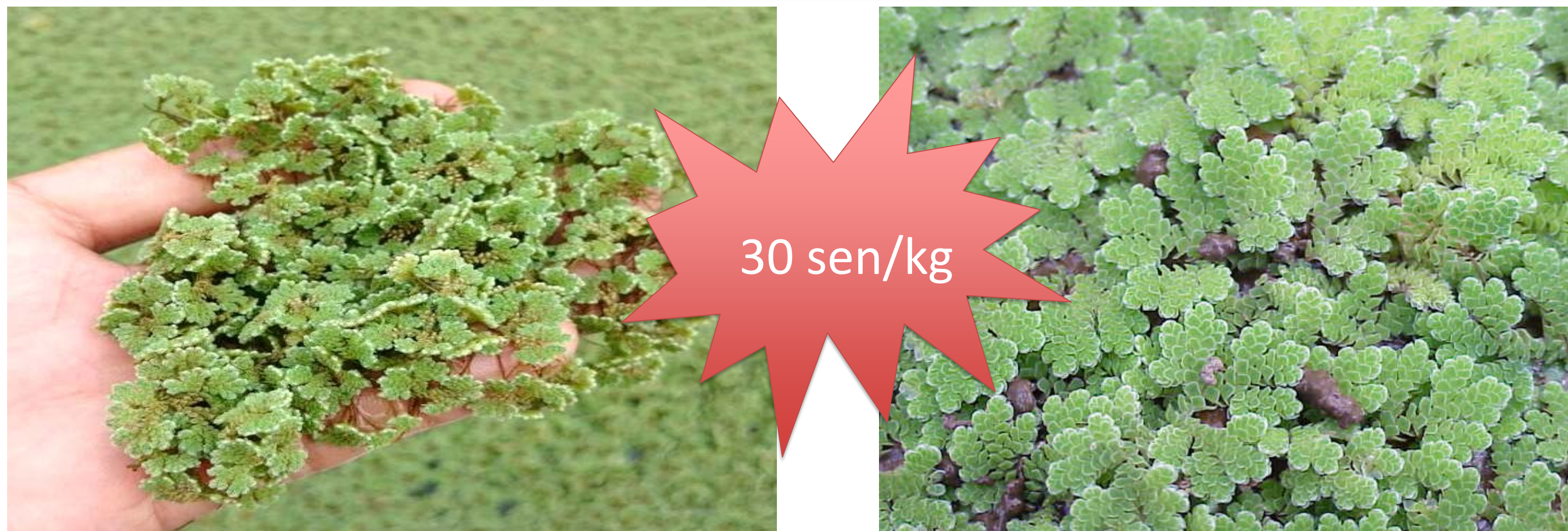


VERSMAP

VERSMAP is designed for *Azolla pinnata* cultivation and drying. It is designed as multilayer vertical shelf with a space in the middle of it. By using **VERSMAP**, it is expected that the production rate of *Azolla pinnata* will increase.

Azolla pinnata

Azolla pinnata is a water fern that is commonly used as animal feed due to its rich content protein, amino acids and minerals. It is cultivated in ponds, pits and other containers.



Objectives

1. To design and fabricate of multilayer vertical shelves, **VERSMAP** of *Azolla pinnata*.
2. To increase the production rate of *Azolla pinnata*.

Benefits

1. Increase the crop production rate 4 times.
2. Reduce cultivation area.
3. Using 10% of soil + organic fertilizer and 90% of water
4. Dryer.
5. Low cost.
6. Low maintenance,.
7. Easy handling.

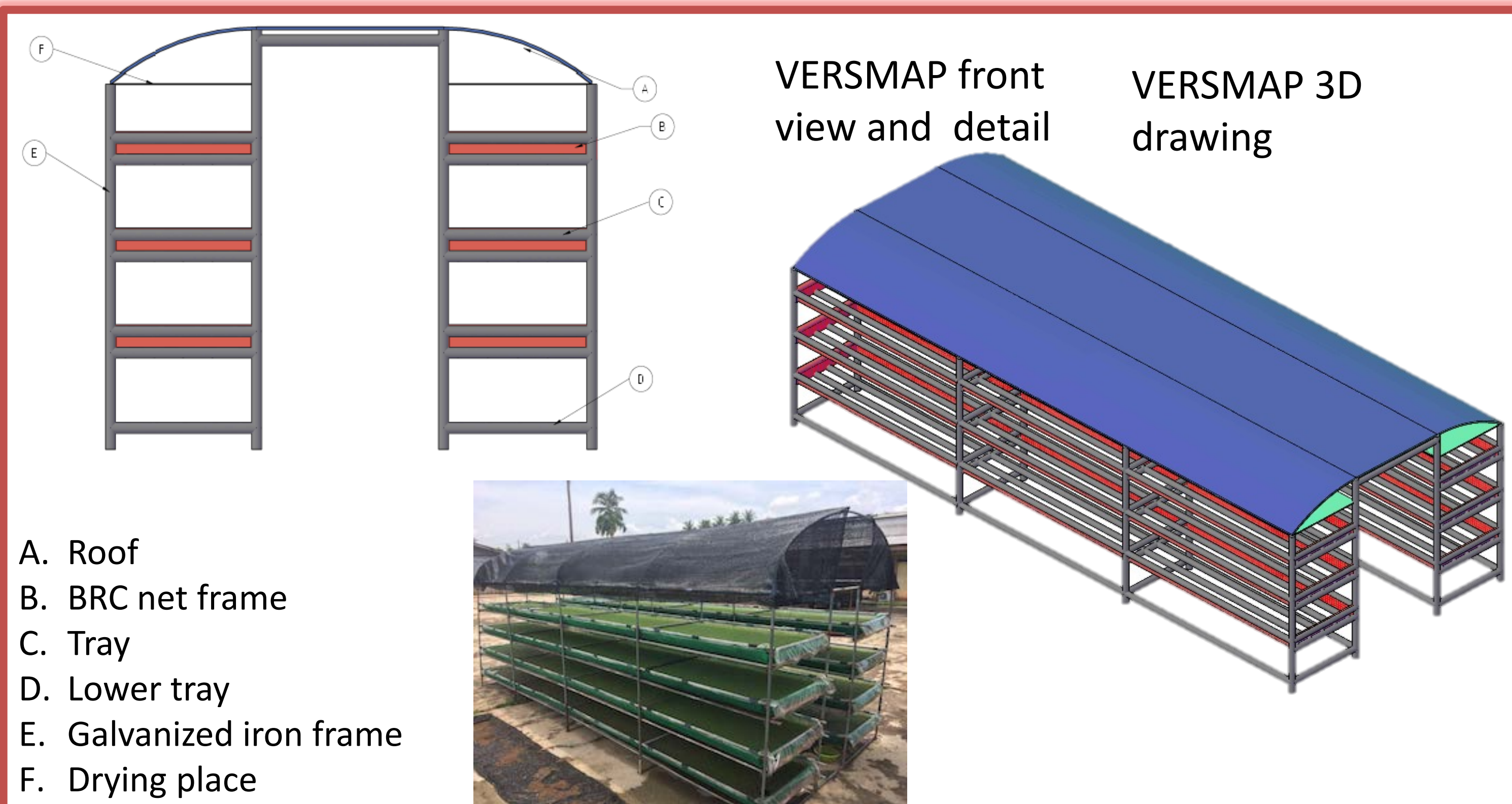
Current Cultivation



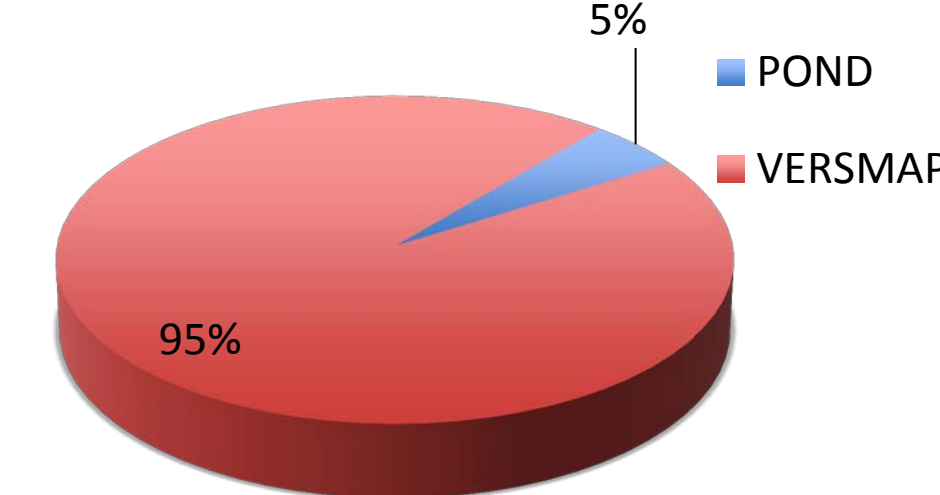
Pond



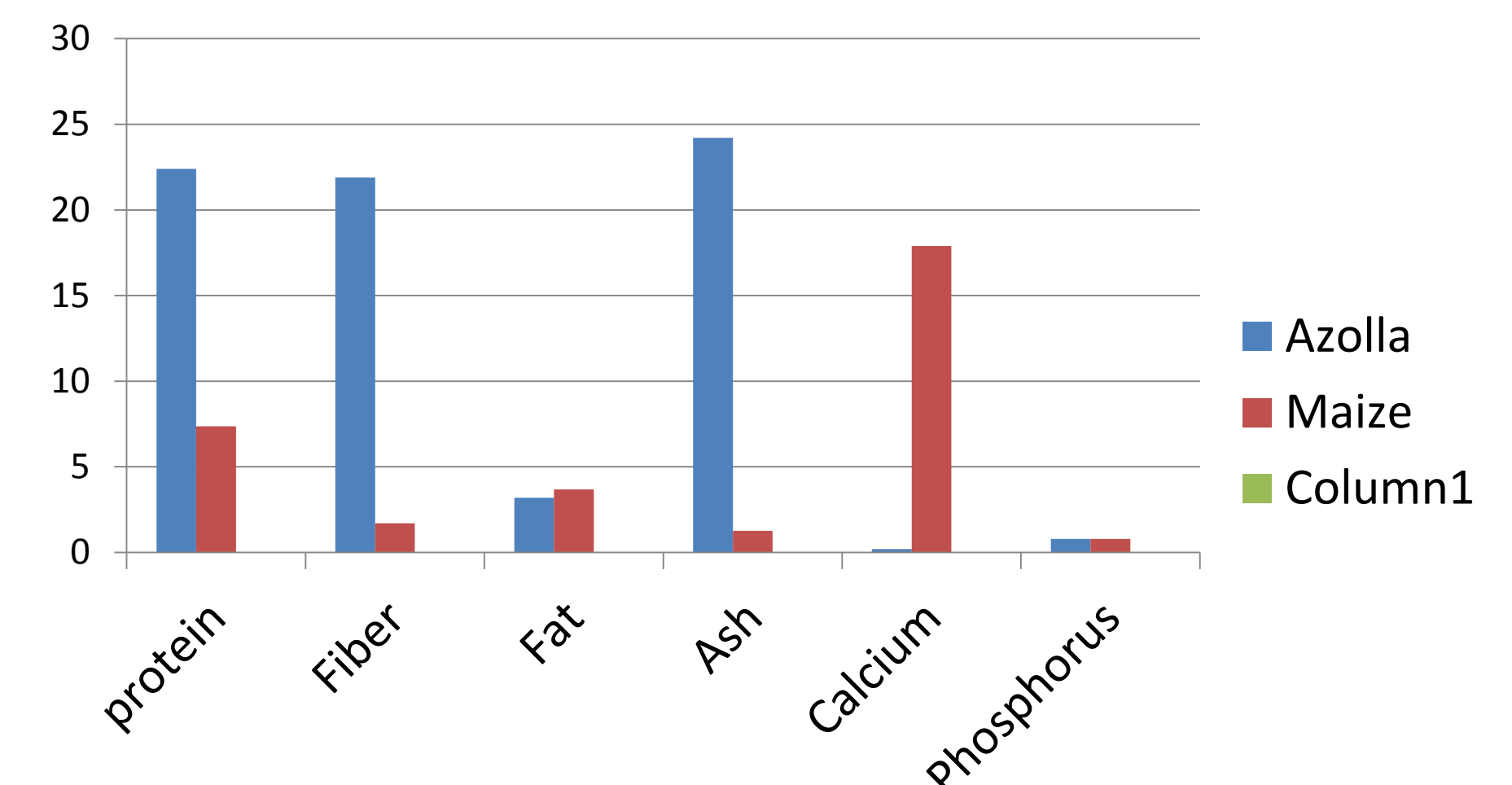
Tray



Result



10kg per 10days per 100 ft²
192kg per 10days per 1920 ft²



Type of Analysis	Layer 1 (%)	Layer 2 (%)	Layer 3 (%)	Layer 4 (%)	Maize (%)
Dry matter	87.22	87.20	87.10	87.10	87.20
Protein	22.49	22.43	22.43	22.40	7.36
Fiber	21.9	21.9	21.9	21.9	1.7
Fat	3.2	3.2	3.2	3.2	3.68
Ash	24.20	24.20	24.20	24.20	2.07
Calcium	0.2	0.2	0.2	0.2	17.9
Phosphorus	0.8	0.8	0.8	0.8	0.8

Table 1. Physicochemical properties of *Azolla pinnata* and maize

Current Animal Feed



Maize animal food
(cost about RM1.30/kg)



Mash animal food
(cost about RM1.70/kg)

Conclusion

In conclusion, the **VERSMAP** can increase the amount of *Azolla pinnata* production rate 4 times compared to conventional method.

Potential Customer

1. Breeder (poultry, ruminant and fish)
2. Animal feed supplier
3. Government agencies; LPP, MARDI and FAMA.