

**Bach (*Acorus calamus*)-paddy (*Oryza sativa*) agri-medicinal model developed by
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Edaphic and environmental requirements of model: The system is suitable under clay, black cotton soil and waterlogged areas for its best growth. *Acorus calamus* (Bach) can grow in waterlogged area hence it is suitable to intercrop with paddy. Usually, it grows well in hot humid condition under 15-40° C with annual rainfall range of 800-2500 mm and prefers sea level to an altitude of 1200 m.

Significance of the model: This model is beneficial for the paddy growers who can utilize their waterlogged land by intercropping of commercially valuable medicinal crops viz. *Acorus calamus* (Bach). *A. calamus* (Bach) is a perennial herb, commonly known as sweet flag in India. It is up to 6 feet tall, aromatic and small yellow/green flowers with indefinitely branched rhizomes. It has several medicinal uses to cure cough and cold, improve nervous system and also the respiratory disorders like bronchitis. Generally, farmers are not aware about the high yielding bach planting material.



Bach (*Acorus calamus*)



paddy (*Oryza sativa*)

Establishment and management of model: Land has to be leveled, deep ploughed and weeds/stones/agricultural residues should be removed. Planting should be carried out onset of monsoon for better survival and early establishment and good growth of bach and crops.

Nursery technique of Bach

Rhizomes of bach plants are cut into the small pieces of 4-5 cm in length. Each small piece having two internodes is suitable as planting material for better regeneration, growth and yield. These cuttings should be sown in the soil up to 4-5 cm depth during the month of May. New sprouts may come out after 15 to 20 days. This sprouted material is ready for transplanting in the rice field during second week of July to August at the spacing of 30x30 cm. FYM of 15 t/ha is necessary for the bach-paddy system. It should be applied 1/4th of quantity (3.5) as basal dressing, half of the quantity (7) after two months of planting and remaining 1/4th quantity (3.5) after 6th month of crop. Further farmers can grow bach along with paddy up to 5 years till its lateral roots will spread. Weeding should be done three times during each cropping period to get maximum production from annual crops. Bach is highly sensitive to salinity. The crop is free from grazing. The crop is resistant to insect, pests and fungal attacks. The first year crop provides planting material for next season at least for one hectare area besides marketable produce.

Rotation period and yield:

Bach plants were harvested after 10 months, which yielded 3.5 t/ha of dried rhizomes and 1.00 lakh propagules of fresh rhizomes for 1 ha.

Economics of the model:

Total expenditure was Rs.1,20,000 inclusive of field operations cost of planting material, preparation of field, FYM and wages. The income generated from paddy was Rs.50,000/ha/year and for Bach plants was Rs.2 lakhs (market rate). So the net income obtained in this model was Rs.1,30,000 lakhs/ha/year.

Impact and up scaling:

Bach-paddy agroforestry model having the potential to provide additional net farm income to farmers and will be one of the best models for doubling the farm income in short rotation periods of years. In addition, this model can utilize the waterlogged area efficiently and effectively and convert into increase in overall productivity and additional income to farmers. This model can be up scaled through training programmes to farmers, extension materials, farmer to farmer interaction and on-farm field visits.