

ORGANIC SERICULTURE FOR BIVOLTINE PRODUCTION

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Need of Sericulture Industry



The soil biological management is very important to improve mulberry productivity. The silkworm *Bombyx mori* L. is responsible for the cocoon productivity and in turn to produce good quality silk. The health, growth and quality of the silkworm solely depend upon the nutritional quality of mulberry leaves which are fed to silkworm. The quantity and quality of silk is directly dependent on the leaf quality.

INTRODUCTION

China has a history of over 5000 years for sericulture. Nearly 30 million farmers are involved in sericulture production in China. Cocoon production is about 500,000 tons per year and nearly 70% of the total production of the world. The organic farming is effectively practiced in China for mulberry foliage production, where as in other Asian countries including India inorganic farming has taken upper hand in mulberry foliage productivity in comparison to organic farming in farmer's fields. Therefore, sustainability in bivoltine silk production has not been achieved in India. Hardly 10% of total silk production is bivoltine in India.

Organic sericulture has developed rapidly and practiced in China in farmers fields. Organic sericulture helps for minimization of environmental pollution. Soil biological properties are enhanced and bivoltine silkworm crop losses are minimized. One of the effective ways of increasing the yield of cocoon per unit area of mulberry is to improve nutritive values of mulberry leaves. The higher the quality of the leaves fed to bivoltine silkworm, the lower is the quantity of leaves required by silkworm (Shablovsakaya and Kafian, 1967). In present scenario of 21st century, the challenges before the sericulturist is how well he can manage the farm to enhance returns on a sustainable basis by way of increasing bivoltine productivity followed by improvement of economic efficiency.

- **Bongale and Dandin (1993) emphasized the effectiveness of nitrogen fixing bacterial bio-fertiliser in mulberry cultivation. Watanabe (1984) concluded in his research studies that use of green manure is very important aspect as a source of organic matter in rice cultivation. Therefore, sericulturists of Tamilnadu are using biofertiliser in more quantity as organic resource and cultivation of sunhemp as green manure to build up soil organic matter. Organic agriculture has developed rapidly in China and spread around the world (Biao, X and Xi aorong, W., 2003).**

To meet the challenges of bivoltine production in Asian countries, organic sericulture has to be intensified in seriproduktivity. Wide spread use of inorganic fertilizers has affected soil health and in turn affected the bivoltine production.



ORGANIC FARMING

- **Effective utilization of natural resources in mulberry cultivation.**
- **Application of Farm Yard manure or Compost manure @ 50 MT/ he / year**
- **Application of Bio-Fertilizer @ 20 kg/ he/ year**
- **Application of Inorganic fertilizer NPK @ 150: 60:60**
- **Effective utilization of sun hemp as green manure in mulberry cultivation.**

Progressive sericulturists of South India were given technical guidance by spot demonstration method on adoption of organic sericulture. The data pertaining to mulberry productivity of V1 variety was recorded for three years from the sericulturists with organic and inorganic agri-practices.

Inorganic Farming

- **Application of Farm Yard Manure @ 20 MT/he/year in single dose.**
- **Application of NPK @ 360 : 150 :150**
- **Frequent spraying of pesticides**

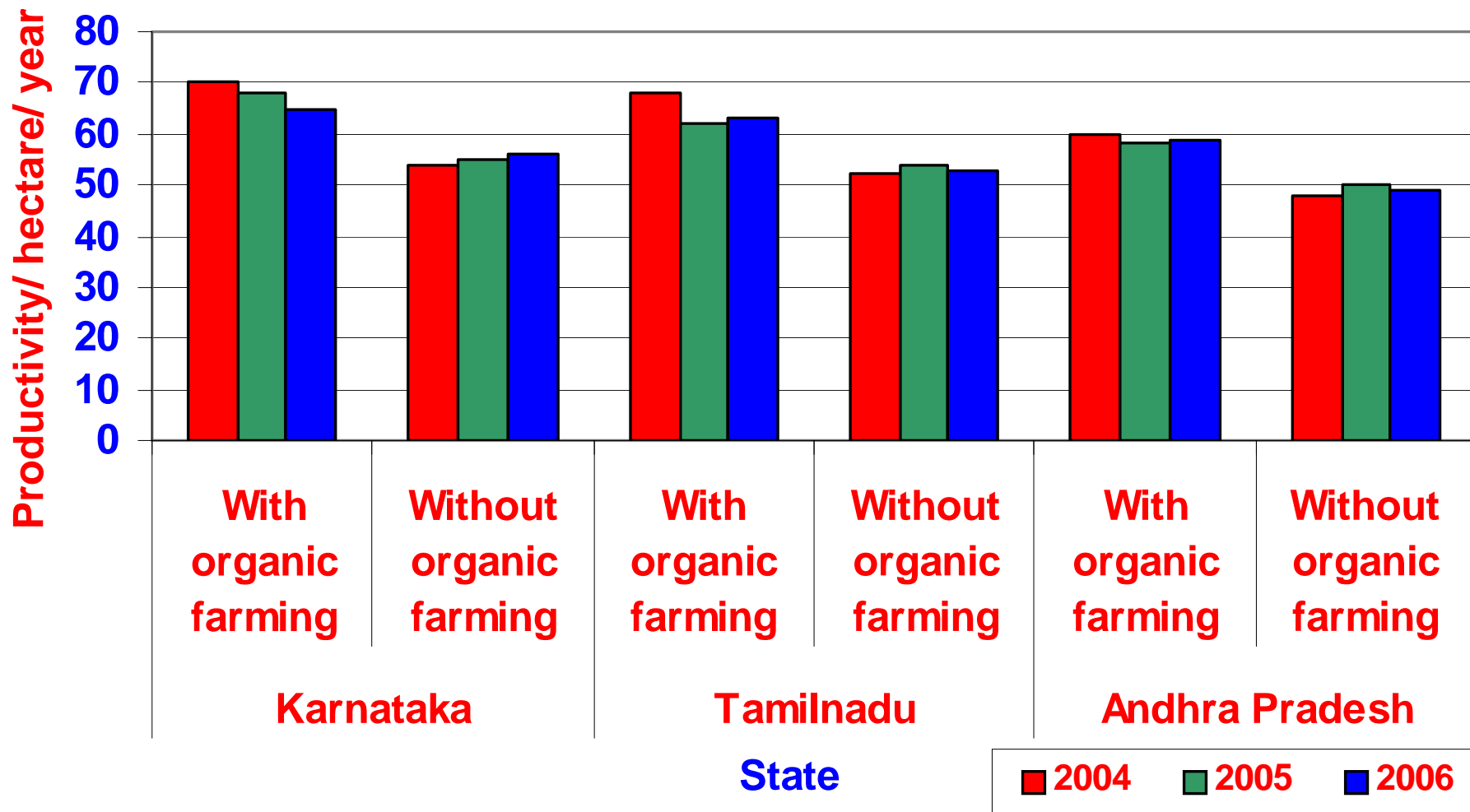


Fig.1: Foliage productivity in different places of South India with and without organic farming

The data pertaining to mulberry and silkworm productivity are depicted in figures 1 to 6.

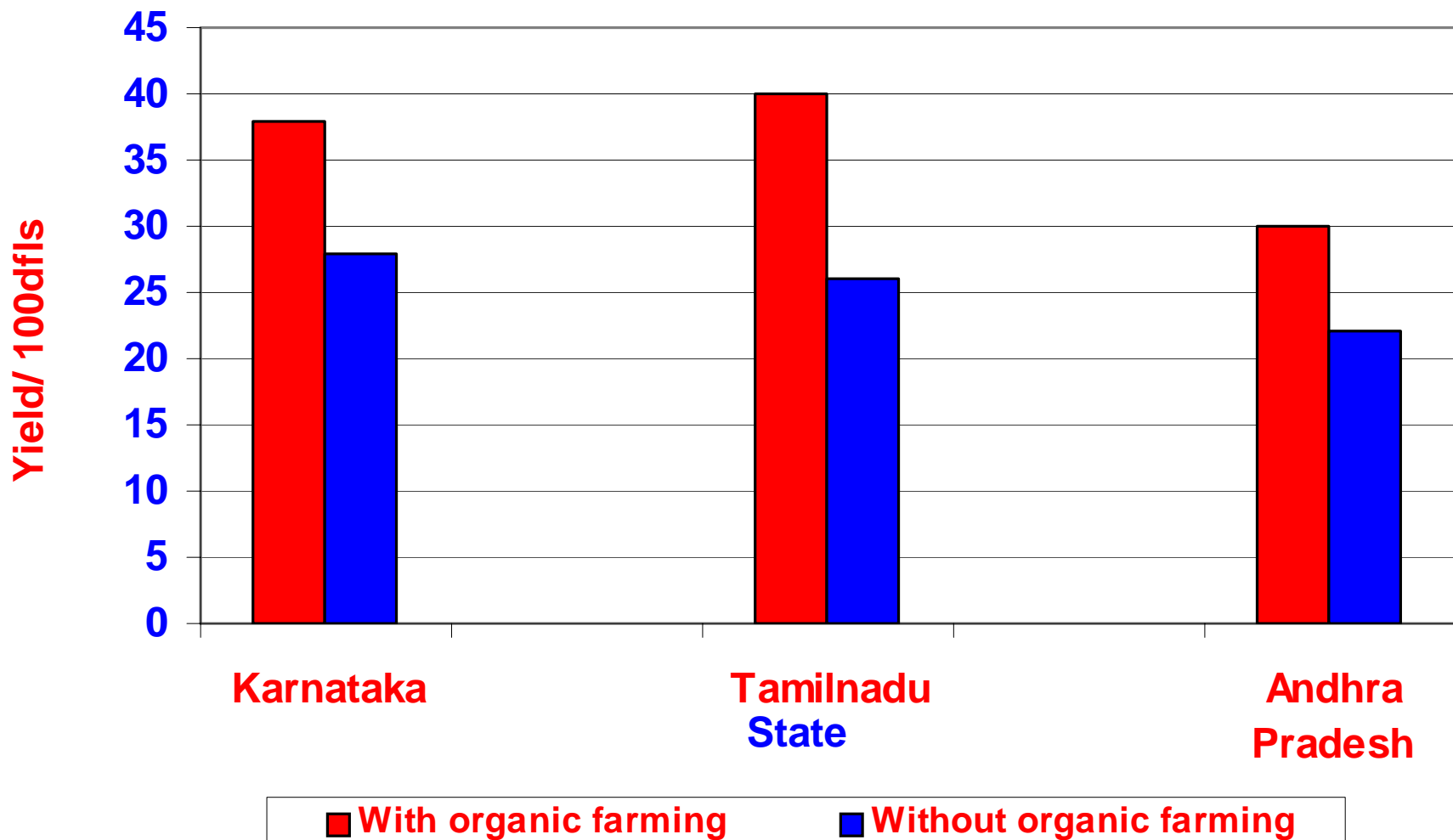


Fig.2 : Cocoon yield/ 100 dfls in different places of South India with and without organic farming

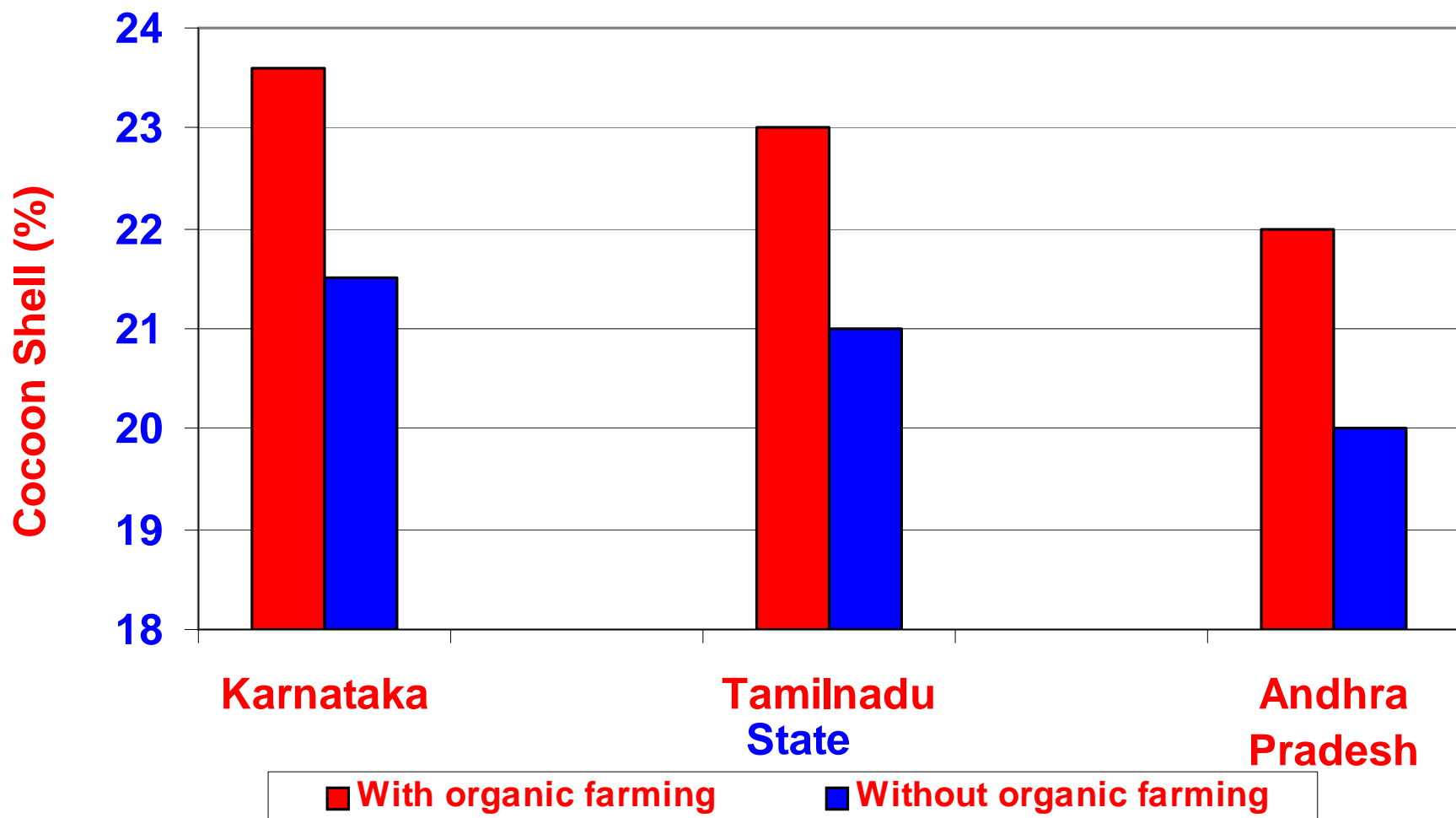


Fig.3 : Cocoon Shell Percentage in different places of South India with and without organic farming

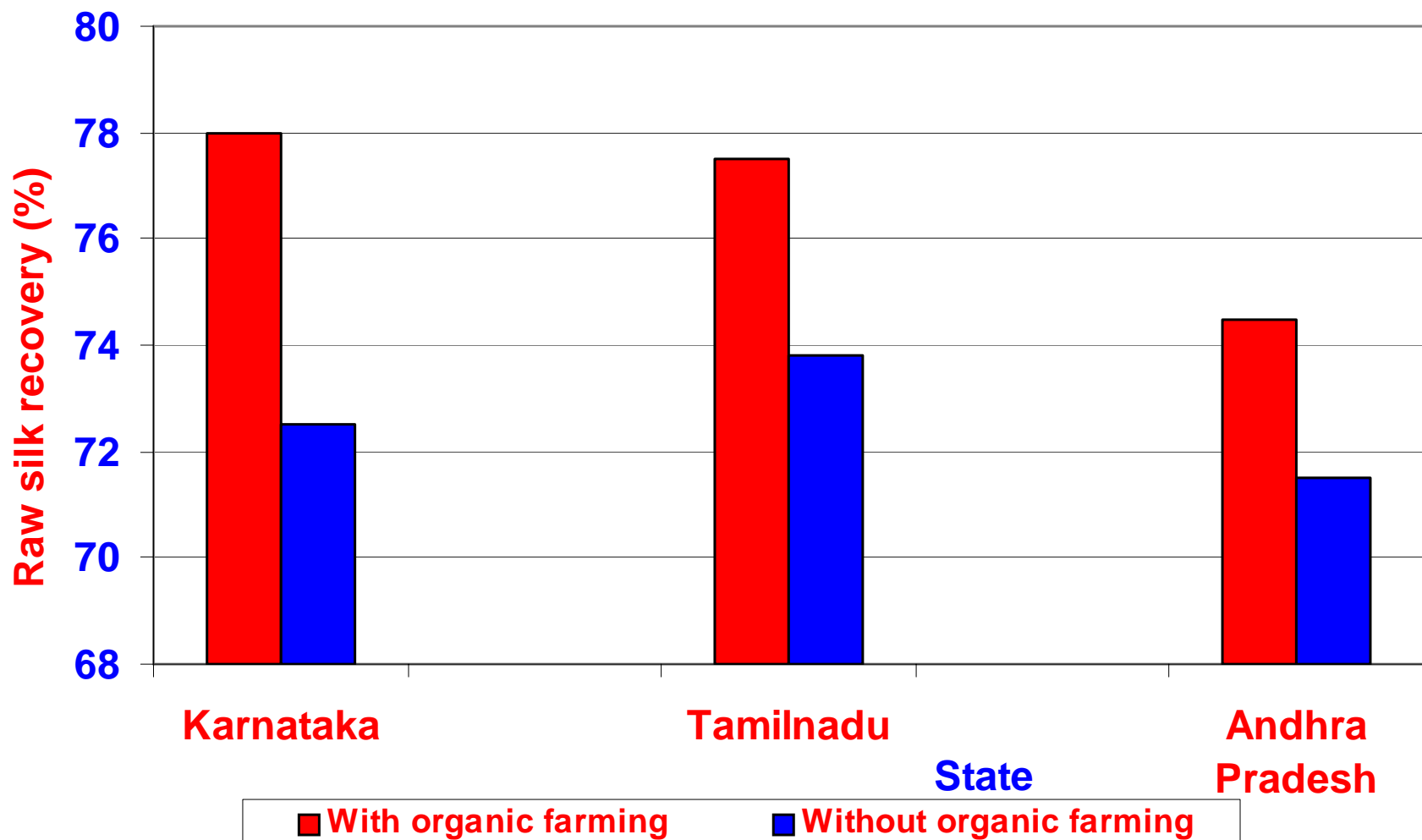


Fig.4 : Raw silk recovery Percentage in different places of South India with and without organic farming

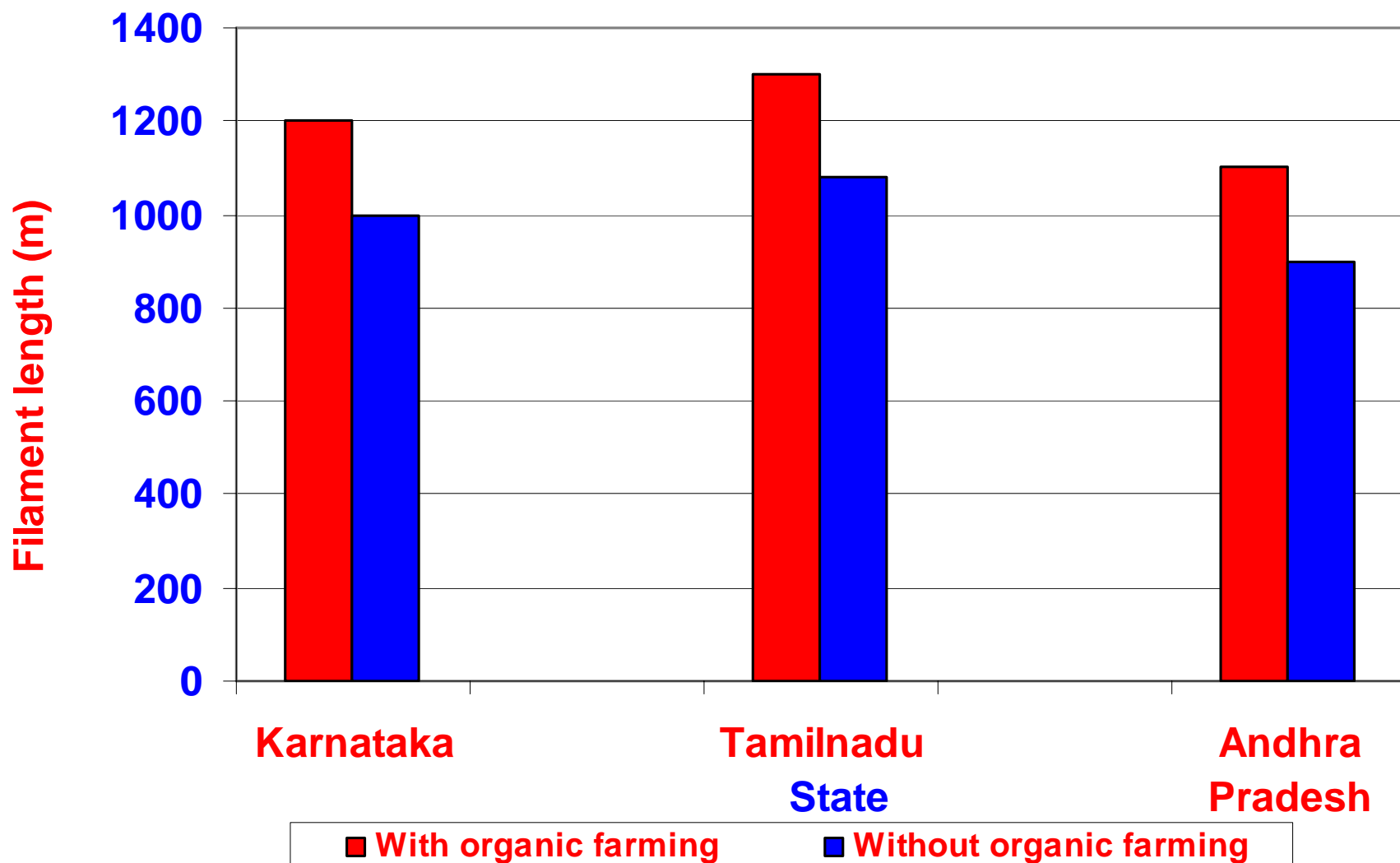


Fig.5 : Filament length in different places of South India with and without organic farming

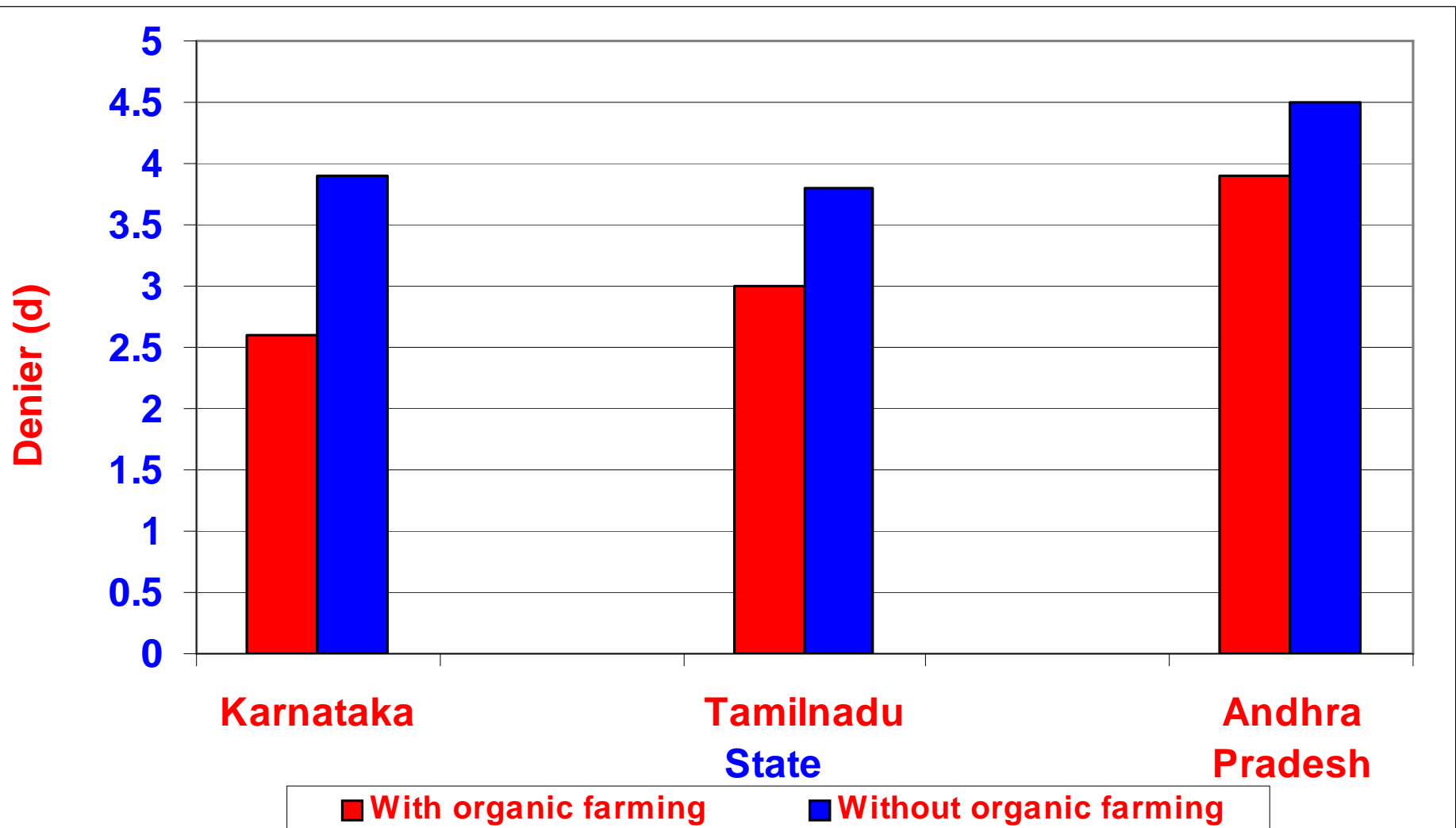


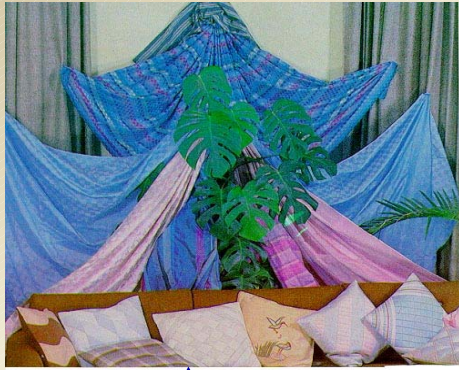
Fig.6 : Filament size (Denier) in different places of South India with and without organic farming

DISCUSSION

- The mulberry leaf productivity was higher in organic farmers and with out organic farming affected mulberry productivity. The foliar diseases of mulberry are completely controlled in organic farming fields. The organic farming foliage photosynthetic efficiency is better in comparison to inorganic foliage photosynthetic efficiency. Organic farming adopted by sericulturists got good bivoltine crop productivity and sericulturists with inorganic farming were affected by silkworm crop losses due to diseases. The use of biofertiliser and cultivation of green manure crop has helped sericulturists of Tamilnadu to improve soil health and organic carbon content. Due to this, sericulturists are able to produce high quality bivoltine silkworm productivity. Organic carbon content and nitrogen content of the soil play major role in production of nutritious leaf productivity. Therefore, organic sericulture will help to improve bivoltine silkworm productivity.

The present study enumerated important findings:

- 1. Organic sericulture has to be intensified in farmers fields to increase bivoltine production.**
- 2. Organic sericulture is the best method to improve soil health.**
- 3. Leaf photosynthetic efficiency has got direct role in bivoltine productivity.**
- 4. To increase world bivoltine production, organic sericulture is the only best solution.**
- 5. Organic matter is one of the most important constituents of the soil and from antiquity man has recognized its importance in regulating soil fertility at desirable levels.**
- 6. Organic sericulture is the only means to achieve the sustainable target in bivoltine productivity in Asian and European countries.**



Silk Fabrics



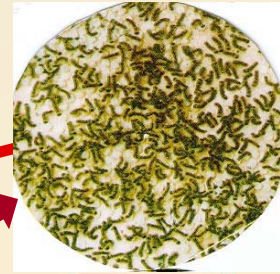
Silk Skein



Automatic multiend reeling machine



Egg laying



Hatching worms



Young Larvae



Late age worms

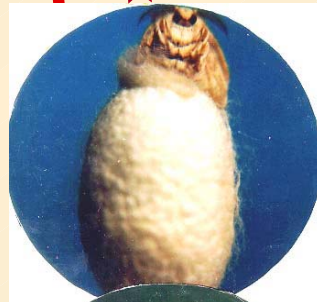


Cocoons on mountage

**LIFE
CYCLE
OF
SILKWORM**



Moth Pairing



Moth Emergence



Cocoons



THANK YOU