Cite this as: Fa-chun GUAN, Zhi-peng SHA, Yu-yang ZHANG, Jun-feng WANG, Chao WANG, 2016. Emergy assessment of three home courtyard agriculture production systems in Tibet Autonomous Region, China. *Journal of Zhejiang University-Science B (Biomedicine & Biotechnology)*. **17**(8):628-639. http://dx.doi.org/10.1631/jzus.B1500154

Emergy assessment of three home courtyard agriculture production systems in Tibet Autonomous Region, China

Key words: **Home courtyard agriculture, Raising Geese in Corn Field, Conventional Corn Planting, PEA-WHEAT Rotation, Emergy, Sustainability**

Research Summary

This study use emergy analysis to evaluate three courtyard agricultural production models in Tibet.

Standard emergy analysis steps as follow:

1.Draw an aggregated systems emergy diagram

2. Establish emergy tables

3. Calculate emergy-based indices

4. Economic benefits

Innovation points

- **Introduction** of three courtyard agricultural production models in Tibet. .

- **Analysis** of the environmental-economic performance of these production systems with emergy method.

- **Emphasis** of the raising geese in corn field showed outstanding ecological and economic benefits followed by pea-wheat rotation, and conventional corn planting occured high environmental load and low sustainability.

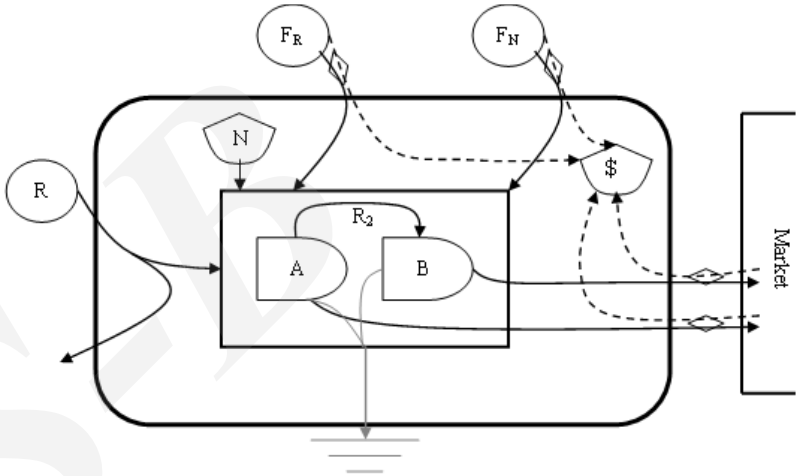

Fig 2 Pea-wheat rotation

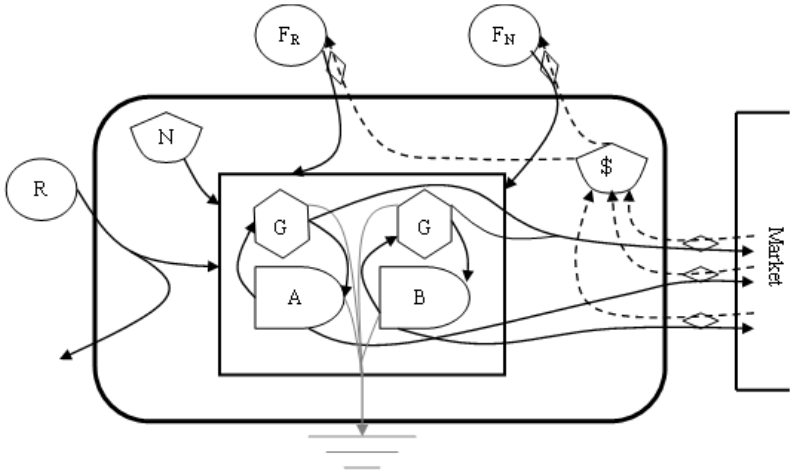

Fig 3 Raising geese in corn field

Innovation points

A series of comprehensive tables were generated to record inputs, outputs of resources and evaluate ecological and economic benefits.

Table 1 | **Emergy evaluation of the RGICF production model .**

Table 2 | **Emergy evaluation table of the CCP production model .**

Table 3 | **Emergy evaluation of the PWR production model.**

Table 4 | **Comparison of main emergy indicators of the different production systems.**

Table 5 | **Comparison of the economic benefits of different production systems during the 2012 and 2013 growing season (US$/ha) .**