



# Nutritional analysis of roasted cashew nuts harvested from agroecological and conventional practice farming in Preah Vihear

Poster ID  
FTN101

Munthae That<sup>1</sup>, Nita Suon<sup>1</sup>, Peany Houg<sup>1</sup>, Sokuntheary Theng<sup>1\*</sup>

<sup>1</sup>ITC, <sup>2</sup>CIRAD, UPR Agroecologie et Intensification Durable des cultures Annuelles (AIDA)

\*Corresponding author: [theng.sokuntheary@itc.edu.kh](mailto:theng.sokuntheary@itc.edu.kh)



## Introduction

Cashew nuts are delicious and nutritious seeds that come from the cashew tree (*Anacardium occidentale*), native to Brazil but now widely grown in tropical regions like India, Vietnam, and Africa. Nutritionally, cashew nuts are rich in lipids, proteins, and essential minerals, making them a valuable dietary component. However, the nutritional profile of cashew nuts can vary significantly depending on cultivation practices. Cashew nuts can be grown using agroecological (organic) or conventional (chemical) methods. Agroecological practices, like intercropping with nitrogen-fixing cover crops, improve soil health by adding organic carbon. Conventional farming relies on synthetic herbicides and insecticides, which may degrade soil quality, reduce crop yields, and harm long-term sustainability.

## Objective

The research aimed to analyze and compare the nutritional content of roasted cashew nuts produced under agroecological and conventional systems. Key nutritional parameters measured included moisture, ash, reducing sugar, fiber, fat, protein, and carbohydrate content. The study focused on nuts from trees aged 4, 5, and 6 years.

## Methodology

Cashew nuts from both agroecological (organic) and conventional practice (inorganic) systems were roasted in an oven at 120°C for 30 minutes. After roasting, the nuts were ground into a fine powder, which was then used for nutritional analysis.

### Moisture

The sample is dried in an oven at 105°C for a duration of 6 hours to determine its moisture content.

### Ash

The measurement is conducted by burning the sample in a muffle furnace at 550°C.

### Fiber

measured by enzymatically digesting, filtering the residue, drying, and correcting for ash content.

### Protein

The Kjeldahl method measures protein via acid digestion, ammonia distillation, and titration

### Reducing Sugar

determined by Fehling's titration (colorimetric endpoint) and calculated based on a glucose standard.

### Fat

Fat extraction was performed using a Soxhlet apparatus with hexane as the solvent.

### Carbohydrate

Carbohydrates (%) = 100% - [Moisture + Protein + Fat + Ash + Fiber] (AOAC Standard)

## Results

**Table 1.** Nutritional value of organic and inorganic cashew nut sample from aged 4 to 6

Management	%M	%A	%Fa	%F	%P	%S	%C
Org4	1.71	3.08	46.27	3.51	19.2	2.68	29.76
Inorg4	1.88	2.87	41.32	3.46	18.5	2.52	35.40
Org5	1.88	2.72	46.10	3.39	18.2	2.54	31.13
Inorg5	1.96	2.62	45.88	3.27	18.0	2.53	31.46
Org6	1.62	3.39	49.00	3.17	19.3	2.55	26.68
Inorg6	1.87	2.76	47.17	2.51	18.2	2.45	29.92

Agroecological farming methods produce cashew nuts with superior nutritional profiles, showing increased fat content (46.1-49%) compared to conventional methods (41.3-47.2%). The organic approach also yields higher protein levels (18.2-19.3% versus conventional's 18.0-18.5%), along with greater fiber (3.2-3.5% compared to 2.5-3.5%) and mineral content (2.7-3.4% ash versus 2.6-2.9%). In contrast, conventional cultivation results in elevated carbohydrate levels (29.9-35.4% compared to agroecological's 26.7-31.1%) and slightly higher moisture content (1.9-2.0% versus 1.6-1.9%). The observed difference is likely due to the natural soil enrichment provided by cover crops such as Stylo in agroecological farming systems, which improve nutrient availability for cashew trees. The results also show that how farmers grow their crops affects the nutrition and quality of the food we get. This is why using agroecological methods is a good idea because they are better for the environment and help produce healthier, more nutritious food.

## Conclusion

This study shows that cashew nuts grown using agroecological methods have a stronger nutritional profile than conventionally farmed nuts, with significantly higher levels of protein, beneficial fats, dietary fiber, and essential minerals. In contrast, conventional farming resulted in higher carbohydrate levels, likely due to differing nutrient management strategies. Additionally, Agroecological practices enhance soil health by boosting organic matter and nitrogen fixation through cover crops like Stylo, while conventional methods degrade soil over time due to synthetic chemical reliance.

