



# Integrating drought-tolerant chickpea (*Cicer arietinum*) in Central Africa offers an opportunity to extend crop production into the dry season and improve food and nutrition security

## Authors

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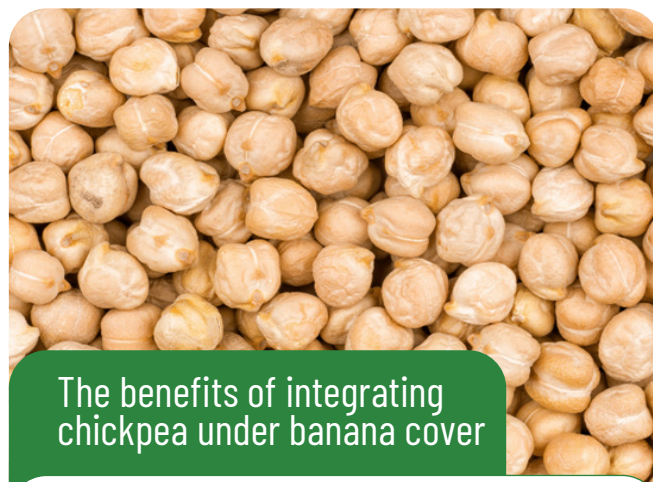
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 Chickpea plant at podding stage. INERA Mulungu/J. Ntamwira.

## Why chickpea?


In Central Africa, most annual crops with a short lifespan cannot thrive in dry seasons, and smallholder farmers cannot access irrigation to extend production into the dry seasons. The integration of chickpea (*Cicer arietinum*) – a drought-tolerant crop – at the onset of the dry season offers the opportunity to optimize the use of the available land to produce additional food. The crop also provides a partial soil coverage during the dry season. Chickpea is currently grown in semi-dry regions with warm weather conditions.

Chickpea grains are rich in protein and starch and are, therefore, important for human nutrition. Chickpea also fixes nitrogen into the soil, reducing soil nitrogen (N) deficits. Chickpea thus has the potential to diversify cropping systems in Central Africa.




## The benefits of integrating chickpea under banana cover

A study conducted in the Eastern Democratic Republic of Congo by Blomme et al. (2020, 2022) identified the following benefits to integrating chickpea cultivation under banana cover:

 Higher chickpea biomass and grain yields were obtained in the dry season.

 Chickpea integration improved banana vegetative growth.

 Chickpea can be exploited to enhance biomass (for fodder, mulch, or manure) and grain yields under banana shade and when cultivated during the dry season months.

 Chickpea. Haifa Negev technologies Ltd, 2021.

## Growing chickpeas

Chickpea can be grown as a monocrop or as an intercrop, in both the dry and wet seasons; however, we recommend dry-season planting, based on the higher grain yields observed for the dry season crop in eastern Democratic Republic of Congo (Blomme et al., 2020, 2022). Chickpea should be planted at the end of the rainy season/beginning of dry season to enable plants to benefit from the residual soil moisture. Plants in the rainy season tend to be vegetative.

**Land preparation:** Minimal tillage is carried out before planting.

**Planting density:** A spacing of 25 cm between plants in a row and 50 cm between rows of chickpeas is recommended. Plant two seeds per planting hole.

**Weeding:** Weed by hand, one and two months after planting, depending on the weed pressure.

**Harvesting:** Harvest your chickpeas when the pods are fully dry (at about three to four months) after planting.

## Tips for processing and eating chickpeas

Chickpea processing practices used singly or in combination include soaking, boiling, steaming, roasting and frying.

**Whole grains:** (i) roast with salt and eat as a snack; and (ii) soak and boil to soften, fry with spices and eat with cereals, or mix with other vegetables.

**Green leaves:** top young leaves can be mixed with other greens and cooked for 30 to 40 minutes as a vegetable.

**Whole green pods and seeds:** these are harvested a week or two before full maturity and consumed after roasting with salt, raw as a snack, or as a cooked vegetable.

**Chickpea flour:** grind the dry chickpea into flour and singly or in combination with other flours make into bread or snacks.

**Remove seed coat:** soak and boil to soften and thereafter eaten after frying, in mixture with vegetables or as a puree after smashing.



**Figure 1.** Vigorously growing chickpea (photo taken at the end of June and July), planted at the start of the dry season (May) at INERA Mulungu.  
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## Acknowledgements

This work was supported by the Belgian Development Cooperation funded CIALCA project and the funders of the CGIAR Trust Fund ([www.cgiar.org/funders/](http://www.cgiar.org/funders/)) through the CGIAR Initiative on West and Central African Food Systems Transformation.

## Recommended reading

Blomme G; Ntamwira J; Ocimati W. (2022). *Mucuna pruriens*, *Crotalaria juncea*, and chickpea (*Cicer arietinum*) have the potential for improving productivity of banana-based systems in Eastern Democratic Republic of Congo. *Legume Science*, 4(4), e145.

Blomme, G., Ntamwira, J., Kearsley, E., Bahati, L., Amini, D., Safari, N., & Ocimati, W. (2020). Sensitivity and tolerance of different annual crops to different levels of banana shade and dry Season weather. *Frontiers in Sustainable Food Systems*, 4, 545926.

## Correct citation

Ntamwira J; Ocimati W; Blomme G. (2023). Integrating drought-tolerant chickpea (*Cicer arietinum*) in Central Africa offers an opportunity to extend crop production into the dry season and improve food and nutrition security. Infonote. Bioversity International. Nairobi, Kenya. 2 p.



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