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# Women's utilisation of indigenous fruits for food security and nutrition among the Varemba in Mberengwa District, Zimbabwe

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This article explores women's utilisation of indigenous fruits for food security and nutrition in Zimbabwe, using the Varemba in the Mberengwa district as a case study. Food insecurity is one of the causes of conflict and disharmony in marriages and families in Zimbabwe. The United States' Agenda 2030 for Sustainable Development acknowledges the role that enhancing rural livelihoods, nutrition and food security plays in managing conflict. The data were collected from an empirical study which was conducted in the Mberengwa district in Zimbabwe. The research participants were purposively sampled. A qualitative research methodology was adopted where data were solicited from the Varemba women who utilise various indigenous fruits to ensure household food and nutrition security to resolve conflicts. The article foregrounds the pivotal role played by Varemba women in alleviating hunger by meeting the food and nutrition needs of their families through utilising indigenous fruits. Furthermore, the research findings reflect that the Varemba women do not merely use indigenous fruits as a source of food, but instead, these fruits are used as a symbol of peace, a mediation tool and as an economic buffer. The article, therefore, argues that by utilising indigenous fruits, Varemba women succeed in ensuring household food security and nutrition, hunger and poverty alleviation (SDGs 1 and 2) and resolving related marital conflicts within their families and societies. The study reflects how Varemba women transition from implicitly using indigenous fruits for survival or as a source of food to explicitly leveraging them as mediation, economic and food security tools.

**Contribution:** This study contributed to SDG1 (Zero Poverty) and SDG2 (Zero Hunger) by indicating how Varemba women utilise indigenous fruits to improve food security and reduce household poverty. The study reflects how food security mitigates marital conflicts and creates harmonious families.

**Keywords:** food security and nutrition; indigenous foods; marital conflicts; women Varemba; Mberengwa; Zimbabwe.

## Introduction

One factor contributing to violence is food insecurity, which can also serve as a conduit for the expression of broader socioeconomic grievances (Jackson, Sanchez & Vos 2017). This is especially the case in Africa, a continent characterised by hunger, food insecurity and undernutrition (Mohajan 2022). In Zimbabwe, Mberengwa in particular, food insecurity is a major driver of conflict and disharmony in marriages and families. This article explores women's utilisation of indigenous fruits for food security and nutrition and marital conflict resolution using the Varemba in the Mberengwa district as a case study. The article argues that food security is one of the most critical marital conflict resolution strategies used by Varemba women. The article explores how Varemba women ensure household food security and nutrition through the utilisation of indigenous edible fruits. While Varemba women utilise many different types of indigenous fruits, this article cannot discuss them all because of space constraints. The article, therefore, only discusses some selected major ones, which are *mapfura* (*marula*) (*Sclerocarya birrea*) and *masau* (*Ziziphus mauritiana*). The selection of these two fruits was based on, firstly, their high nutritional and medicinal value; secondly, their availability and reliability on a yearly basis because they are drought-resistant; and thirdly, their multi-purpose utility as these fruits serve as food, medicine and an economic buffer.

To prevent conflicts, the United Nations Agenda 2030 for Sustainable Development acknowledges the significance of enhancing rural livelihoods, food security and nutrition. According to Vos et al. (2017), the 2030 agenda views the elimination of poverty and hunger (SDGs 1 and 2) as

prerequisites for achieving inclusive and harmonious communities. This article explores the contribution of Varemba women in alleviating poverty and hunger, resolving related conflicts and fostering harmony in their marriages, families and societies through the utilisation of indigenous fruits. It explores how they contribute towards alleviating hunger and building harmony by meeting the food and nutrition needs of their families as well as serving as tools of mediation and conflict resolution. Apart from that, it explores the women's contribution to poverty alleviation and maintaining harmony in their families through the sale of some of the indigenous fruits including *interalia, mapfura* (*marula*) (*S. birrea*) and *masau* (*Z. mauritiana*).

The study found out that the women use the money they get to meet some of their financial obligations and to improve their living standards. Financial stress is a common cause of marital conflict and community disharmony. The article, therefore, argues that Varemba women in the Mberengwa district, Zimbabwe, are playing a pivotal role in the attainment of Agenda 2030. Through the utilisation of indigenous fruits, they ensure household food security and nutrition, succeed in alleviating poverty (SDG I), alleviating hunger (SDG 2) and conflict resolution in their marriages, families and society at large.

# Research methods and design

## Methodology

The study investigated Varemba women's usage of local fruits for food security and peace-building using a qualitative research methodology. A naturalistic and interpretive approach to the topic being studied is a component of qualitative research (Muzari, Shava & Shonhiwa 2022). To interpret meanings based on the participants' conceptions, qualitative research examines events in their naturalistic environments (Muzari et al. 2022). A qualitative investigation examines the social issue facing humanity by drawing on many methodological approaches (Cresswell 2014). The study is carried out in a natural environment, and the researchers' analyse the informants' remarks and provide in-depth perspectives of their environment. This research used a qualitative methodology, gathering information from *Varemba* women in the Mberengwa district and giving them a voice on important topics like conflict resolution and food security. Inductive in nature, qualitative research typically focuses on meanings and insights in a particular setting (Muzari et al. 2022). Inductive analysis is delving deeply into the data's nuances to identify significant categories, dimensions and interrelationships (eds. Terre-Blanche, Durrheim & Painter 2006).

The researcher is the main tool used in the qualitative research approach to acquire data. A case study design, focusing on the Varemba community in the Mberengwa district, was adopted to proffer a thick and contextualised comprehension of the phenomenon. Fieldwork research was done over a period of 3 months. This allowed for rapport building, substantial engagement and trust building with research participants (Morris et al. 2025).

Purposive sampling was used to select the research sample. In qualitative research, purposive sampling is employed for its clear, criterion-based selection of research participants (Andrade 2021). Purposive sampling guarantees that research participants possess specific knowledge or experiences, and thus it ensures that the collection of rich, relevant and diverse data is enabled (Andrade 2021). In practice, purposive sampling involved the identification and recruitment of 25 key informants who were Varemba women renowned for possessing vast knowledge of local fruits as well as the informants' role as household managers and community advisors and mediators. Data were collected using semi-structured interviews as the primary tool. This was guided by an interview protocol that covered topics on indigenous fruits used for food security and experiences of conflict resolution. The interviews were conducted in vernacular language. The semi-structured interviews afforded the researchers greater flexibility and adaptability, thereby allowing them to maintain a coherent investigative trajectory (Ruslin et al. 2022). Direct observation was also adopted as a research instrument. This entailed the authors accompanying some of the research participants on their fruit foraging and harvesting trips. Focus group discussions were then used to explore collective views on the utilisation of indigenous fruits for food security. The triangulation method adopted for data collection ensured reliability and validity of the research process (Nha 2021). Reliability was enabled through a detailed account of the sampling procedures, interview protocols and data analysis.

## Ethical considerations

Ethical clearance to conduct this study was obtained from the Faculty of Arts and Humanities, Department of Philosophy, Religion and Ethics, Ethics Committee of the University of Zimbabwe (No. 074PRE/23).

The study was granted ethical approval by the Research Ethics Committee of the University of Zimbabwe. All research procedures adhered to the ethical guidelines for conducting research with human participants. Research participants provided written consent prior to their involvement in the study. The researchers explained the purpose of the study, procedures and potential risks and ensured participants fully understood their rights, including voluntary participation and the option to withdraw at any time without consequences. All participants were assigned pseudonyms as a measure for ensuring their confidentiality. Data were stored securely, with access to the research team only.

# Theoretical framework

African feminism theory serves as the foundation for this study, which examines how Varemba women use indigenous fruits to promote food security. In the 17th century, individuals in the West began the global movement known as feminism with the goal of freeing women from the unjust dominance of men (Mapuranga 2010). Some of the most prominent pioneers of feminist theory include Mary Wollstonecraft, who wrote 'Vindication of the rights of

woman' (1794), and Simone de Beauvoir, known for her influential work 'The Second Sex' (1949), which significantly impacted modern feminism. Both Wollstonecraft (1794) and De Beavoir (1949) are regarded as foundational figures in the field of feminism. Feminism stands for the equality of men and women in society (Mapuranga 2010). Feminism has different strands, and this article uses the African feminism strand. The contradictions inherent in mainstream or Western feminisms gave rise to African feminism. It emerged from the understanding that women have a variety of experiences, which means that a universal feminism that applies to all individuals and cultures worldwide is not feasible (Hlatywayo 2017). For example, Oyěwumi (2005) argues that Western feminism pays more attention to male privilege and the subordination of women. On the other hand, issues which might be viewed negatively by women in the West might be considered differently by women elsewhere. In this case, the utilisation of indigenous fruits for food security and nutrition by Varemba women in Africa, Zimbabwe, might be regarded as primitive by Western women. Mekgwe (2010), therefore, suggests that African feminism was a response to the failure of Western feminism to acknowledge cultural specifications which are the basis of the theorising of other feminisms, especially African feminism (Hlatywayo 2017).

Mekgwe (2008) claims that although African feminism acknowledges its debt to the global feminism movement, its discourse focuses on challenges that are more specific to the African context. This perspective of African feminism is clarified by Nnaemeka (1998), who notes that to adequately define the phenomena known as feminism, one needs to refer to the African environment rather than Western feminism. African feminism is utilised in this article to show that it is proactive – avoid marital problems by promoting food security and fostering peace – rather than reactive – waiting to address marital conflicts brought on by poverty and hunger. With its roots in the African context, African feminism has a unique life of its own. Its uniqueness emanates from the cultural and philosophically specificity of its prevalence (Nnaemeka 1998).

Western feminism and African feminism are not interchangeable (Hooks 2000). Feminism is therefore not uniform (Musingafi 2023). This article uses African feminism because, according to Ukpokolo (2016), feminism as a school of thought 'lacks the epistemological and ideological frameworks that capture the experiences of the African woman, which are anchored on the African woman, which are anchored on the African realities'. In this case, the experiences of the Varemba women using indigenous wild foods for food security and nutrition are the basis for the use of African feminism. African feminism serves as the conceptual foundation for this study as well. The explanation behind this is the necessity for a feminist theoretical framework that takes into account the experiences of African women in their pursuit of family food security and nutrition. The merits of African feminism are that it resists Euro-Western conceptualisations and legacies of colonialism and it recovers previously marginalised indigenous culture (Hlatywayo 2017). African feminism is ideal for this study as it addresses the important aspect of viewing phenomena from the perspective of the African people, reaffirming the holistic aspects of indigenous culture and its role in food security and nutrition (Hlatywayo 2017). Having discussed the methodology and theoretical framework that underpin this study, the ensuing sections explore the indigenous fruits utilised by Varemba women to ensure household food and nutrition security and to promote harmony in their marriages, families and society as a whole.

## Varemba women's utilisation of indigenous wild fruits for food security and nutrition

The article foregrounds the critical role played by Varemba women in the Mberengwa district, Zimbabwe, in ensuring household food security and nutrition security through the utilisation of indigenous wild fruits to alleviate poverty and hunger (SDGs 1 and 2) and to promote harmony in their marriages, families and society at large. The article explores the various indigenous wild fruits, particularly *mapfura* (*S. birrea*) and *masau* (*Z. mauritiana),* collected by Varemba women to argue that these fruits are used as a source of food, a mediation tool, an economic asset and a tool for harmonious living within the family and community at large.

The collection of indigenous wild fruits was cited by all study participants as one of the main ways they use to ensure household food security and nutrition in their families. Varemba women collect highly nutritious indigenous wild fruits such as *mapfura* (*marula*) (*S. birrea*) and *masau* (*Z. mauritiana*), among others. The fruits provide them with a wide range of nutrients required by the human body including *interalia*, vitamins, proteins, fibre, carbohydrates, fats and minerals. In the ensuring sections, the article explores and foregrounds Varemba women's utilisation of the aforementioned wild indigenous fruits to attain household food security and nutrition, to eradicate poverty and hunger (SDGs 1 and 2) and to resolve related marital conflicts in their families and societies in the Mberengwa district.

## Indigenous wild fruits

Varemba women harvest and utilise different kinds of edible indigenous wild fruits to ensure household food security and nutrition, which is one of the prerequisites for building harmony in marriages and families. According to Mabhauchi et al. (2017), wild edible species are plants that grow naturally in certain geographic areas. Varemba women gather the fruits from their immediate surroundings. They collect the fruits from nearby forests or bushes. The fruits are readily available, fresh and succulent during their respective seasons. Fruits are good sources of essential micronutrients in the diet (Chawafambira et al. 2020). Varemba women do not have to go far to collect and get a taste of these treats. Within a kilometre radius, there are more than 10 different indigenous wild fruit trees that ripen at different times throughout the year. For instance, *masau* are available in the winter months of May to August. Thus, during the time of the fieldwork for

this study. (June–August 2023), the *masau* fruits were in season. *Mapfura* (*Marula*) are available during the rainy season from November to March. The availability of different types of fruits at different times of the year enables the Varemba women to promote household food security and nutrition throughout the year. Some of the indigenous wild fruits utilised by Varemba women for household food security and nutrition are discussed as follows.

## *Mapfura* (*Marula*) (*Sclerocarya birrea*)

*Mapfura* (*Marula*) (*S. birrea*) are some of the major indigenous fruits utilised by Varemba women to enhance food security and nutrition, eradicate poverty and hunger and resolve related marital conflicts in their families. The *mupfura* is an indigenous African wild tree highly prized for its fruit. According to Shackelton et al. (2001), *marula* is one of the most widely used native wild fruit in Africa. The fruit of *marula* trees, which are found in 29 sub-Saharan countries, is rich in vitamin C, and the nut in its core is high in protein, making it a nutritious food source. According to Mashu et al. (2022), the *marula* tree is a wild edible fruit tree that grows freely throughout a significant portion of sub-Saharan Africa. *Marula* trees are typically large to average in size, reaching up to 9 m in height, but under ideal growing conditions, they can double in height to reach up to 18 metres (Tsautage 2020). The *mapfura* tree is frequently found in open forests and low elevations in Zimbabwe, such as Mount Darwin, Mberengwa, Mwenezi, Gwanda, Chivi, Filabusi and Zvishavane. In addition to its commercial name, *marula*, additional names that are frequently used in Southern Africa are elephant tree or jelly plum (English), *nkanyi* (Xitsonga), *mapfura* (Shona), interalia, *marula* (Venda) and *morula* (Sepedi). On the ground, *mapfura* seeds germinate easily. Animals spread the seeds over Mberengwa. *Mapfura* fruits ripen in 5 days after falling off the tree while still hard and green. *Mapfura* fruits have a nice sweet-sour flavour when they are fully ripe. In the centre of each fruit is a large nut stone, which contains a soft macadamia-like nut kernel. The kernels are highly nutritious, and the Varemba people eat them raw, roasted or in a relish as a spice. According to one study participant:

> 'We generally consume them [*marula* fruits] fresh. However, we also process most of the fruits unto juices, beverages, jams and jellies. This helps us to ensure household food security and nutrition in our families.' (Joyce, interview, 16 July 2023)

Various studies have also demonstrated the utilisation of the *marula* fruit in juice processing, jams and jellies, chutney, fruit leather, vinegar, alcohol-based products and animal feed (Billie, Ndhleve & Jumbela 2013; Mashu et al. 2022; Ojewole et al. 2010).

The *mupfura* tree and its products have long played a significant role in Zimbabwean culture and daily life (Ingwani 2022). *Marula* trees are known as 'miracle trees' among the Varemba, as they are in some African groups, because of their many applications. The leaves, bark, wood, roots and fruit of the tree are all useful in some way. This study examined how Varemba women employ each component to alleviate poverty and hunger, promote family harmony and guarantee the security of food and nutrition in the home. A well-known treat that has been handed down through the years is the Varemba *mapfura* fruit, whether it is fresh or dried. Its many health benefits are what make it special (Mashu et al. 2022). The vitamin C content of fresh *marula* fruits is more than three times that of oranges (Ingwani 2022). Participants in the study reported that in addition to consuming the fruits fresh:

> '… we also ferment the fruits to brew *marula* beer.' (Mai Taku, interview, 18 July 2023)

Maroyi (2013) found similar results, stating that *marula* fruit is either fermented for making *marula* beer or consumed fresh in Zimbabwe. According to Dlamini (2011) and Schulze-Kaysers, Feuereisena and Schieber (2015), *marula* fruits are either eaten raw or processed into by-products such as jam, drinks, concentrates and the well-known fermented alcoholic beverage *amarula*.

Billie et al. (2013) note that the mesocarp of the flesh juice has a refreshing, acceptable acidic and sour taste which is thirst-quenching and enhances energy. According to Shackleton et al. (2022), the *marula* juice improves the production of sperms. This study found out that the Varemba also utilise *marula* juices to enhance male fertility, particularly in cases of male impotence. As one male study participant who preferred to remain anonymous put it:

> 'I had a problem of impotence for four years, I tried in vain to impregnate my wife. At first I thought my wife was the one who was barren while she also blamed me. This resulted in so much marital conflict between us. When I eventually realized that the problem lay with me, I began to take *mapfura* juices to increase my sperm count. This was effective and now I am a proud father of three. The birth of our children helped to resolve the marital conflicts and now our marriage is characterized by joy, peace and happiness.' (Mr. X, interview, 19 July 2023)

The above excerpt clearly demonstrates how the *marula* fruit plays a vital multi-purpose role including food and nutrition security, hunger alleviation and marital conflict resolution. Varemba women also utilise *mapfura* fruit to make products such as chutneys and pie fillings.

Another stated that:

> '… we also often boil and drink the *mapfura* skins or we burn and crush them and utilise them instead of tea.' (Ruth, interview, 15 July 2023)

The *mapfura* fruit is also highly prized for its medicinal benefits, apart from enhancing food and nutrition security. FAO et al. (2020) and Suleiman et al. (2017) note that non-timber forest products (NTFPs) such as *marula* fruits contribute to the livelihoods of between 3.5 and 5.8 billion people worldwide in the form of income, food and nutrition security, medicinal and other socio-economic ecosystem services. Studies by Dorothy et al. (2023) and Sintumule and Mashau (2019) also found out that *marula* fruit is to a great extent the most utilised indigenous wild fruit for local rural communities of Southern African communities, where it is utilised for food and nutrition security

and for medicinal purposes. According to Mashu et al. (2022), the *marula* fruit is a functional food because of its components' positive effects on health and illness prevention. Important bioactive substances including flavonoids and polyphenols are found in *marula* fruits, as well as triterpenoids, phytosterols and tannins (Todorov 2009). Additional research has also shown that *marula* fruit contains anti-inflammatory, anti-hypertensive, anti-oxidant and anti-diarrheal qualities (Mariod & Abdelwahab 2012). According to Mashu et al. (2022), eating wild fruits like *marula* has a significant negative correlation with the risk of developing cancer and cardiovascular disease.

The importance of the *marula* fruit, according to study participants, came to the fore during the coronavirus disease 2019 (COVID-19) pandemic. After losing their livelihoods, jobs and incomes, most people in towns and cities could not afford to buy fruits despite their centrality for a balanced diet. However, in Mberengwa, one explained that:

> *'Munguva yekhovhidhi hatina kuita dambudziko rokushaya michero yokudya ine hutano. Mapfura umwe muchero wataiwana pachena uye wakatibatsira kupedza zhara kuti tive nokudya kwakakwana kune hutano mudzimba dzedu. Izvi zvakabatsira kupedza mhirizhonga dzinokonzerwa nezhara nekushaya chikafu chakakwana zvikaunza runyararo mudzimba dzedu.* [During the COVID-19 pandemic we had abundance of nutritious fruits to eat. *Marula* were some of the wild fruits which were readily available at no charge. *Marula* helped to alleviate hunger and to enhance household food and nutrition security. The availability of *marula* helped to resolve marital conflicts caused by hunger and food insecurity and to promote harmony in our families.]' (Mai Chido, interview, 14 July 2023 [author's own translation])

These observations support the conclusions made in the 2020 report on the state of food security and nutrition worldwide by the Food and Agriculture Organization (FAO)/ Fish Aggregating Device (FAD), United Nations children's Fund (UNICEF), World Food Programme (WFP) and World Health Organization (WHO). They said that because of the global recession and high unemployment rates, particularly in poorer nations, the COVID-19 pandemic made fruits extremely costly. However, Sibiya, Kayitesi and Moteetee (2021) noted that native wild *marula* fruit was given out for free during certain seasons and that, because of its high nutritious content, it significantly improved food security. *Marula* fruit is a great source of minerals, vitamins, carotenoids and amino acids (Achaglinkame, Osei & Agyeman 2019; Iddir et al. 2020; Sibiya, Kayitesi & Moteetee 2020; Wang et al. 2016). Therefore, Wu et al. (2015) contend that a poor intake of fruits like *marula* is linked to a higher risk of chronic conditions including diabetes mellitus, cardiovascular disease, hypertension and fatalities.

Participants in the study reported eating *mapfura* seeds as a snack in addition to the fruit or pulp. Minerals and vitamins such as calcium, nicotinic acid, iron, magnesium, thiamine, zinc and phosphorus are abundant in *marula* seeds (Ojewole et al. 2010). According to one study participant:

> '*Tinodya mhodzi dzemapfura dziri nyoro kana dzakaoma. Tinodzigayawo tosanganisa nemuriwo, bota, nyama/usavi nesupu*, *izvi zvichibatsira kuti chikafu chinhuwire* (We eat *marula* seeds fresh or dried as a snack. We also mill the seeds and incorporate the powder to vegetables, porridge, meat and soups to enhance the flavour of the food.' (Ruth, interview, 16 July 2023 [author's own translation])

Similar findings were reported by Maroyi (2013), Mashu et al. (2022). Apart from eating *marula* seeds or incorporating them into food to enhance its flavour, Varemba women also innovatively process them into biltong, which they store for future utilisation when the *marula* fruit is out of season. As one put it:

> 'While the *marula* fruit is in abundance, we also mill the seeds and shape them into meat like cakes which we store as *chimukuyu* [*biltong*] for future use. This way, we ensure that our families are food and nutrition secure throughout the year until the next harvesting season. This also helps to eradicate hunger.' (Mrs Jopa, interview, 16 July 2023)

These findings corroborate Shone (1979), who reported a similar practice among the Venda people in South Africa. Varemba women also make oil from *mapfura* seeds. *Mapfura* seeds contain oil that is a rich source of protein which combats stretch marks because of its anti-ageing characteristics. *Marula* oil is very stable to lipid oxidation and therefore Varemba women, like other women in African communities, use it to preserve meat. Chauke, Modjadji and Mbili's (2025) study reported similar findings. Mashu et al. (2022) observed that in Namibia, some communities process *marula* seeds into oil or consume them as a snack.

Another study participant noted that:

> 'We also make *mapfura* oil after extracting the *mapfura* seeds and crushing and squeezing them. We use the oil to enrich vegetables and other relishes. This helps us to save money as we do not have to buy cooking oil from the shops which is very expensive and beyond the reach of many of us ordinary Zimbabweans here in Mberengwa.' (Mrs Mbamba, interview, 20 July 2023)

Mutshinyalo and Tshisevhe (2003) note that as its fruit kernels are eaten or crushed for oil extraction, the *marula* is viewed as a multi-purpose tree.

*Marula* fruits were also cited as key sources of income among the Varemba, thereby alleviating poverty and promoting harmony in families. According to Philip (2018), over the last few decades, the *marula* fruit trade has been an important economic vehicle in both informal and commercial markets. Shackleton (2004) notes that the *marula* fruit trade has been one of the few options available to generate an income, especially for women and other vulnerable members of society. In Mberengwa, Varemba women also generate substantial income from *marula* fruit sales. As one study participant put it:

> '*Pazhe pekumadya* [*mapfura*] *sechikafu nekupedza zhara, nekugadzira mafuta, tinomatengesawo tichiwana mari yatinoshandisa kuita zvimwe zvinhu zvakaita sekubhadhara mari yevana yechikoro, kutenga manyufomu avo echikoro, nekubhadhara mari yechigayo.* (Apart from consuming them [*marula*], as food and to eradicate hunger, or making oil, we also sell them to generate some income and we use the money for other purposes such as paying our children's school fees, buying their school uniforms and paying for the grinding mill.' (Mrs Muhamba, interview, 13 July 2023 [author's own translation])

This observation collaborates with findings by Du Plessis, Lombard and Den Adel (2002) in a similar study in Namibia. They suggested that the use of *marula* (*S. birrea*) is one of the most important fruits and potential sources of income for primary producers in the North and Central Regions of Okavango and Caprivi in Namibia (Du Plessis et al. 2002). Ingwani (2022) also revealed the same findings in her study on the utilisation of indigenous fruits among the Shangaan people in South Eastern Zimbabwe. This study, therefore, found out that Varemba women utilise *mapfura* (*marula*) for food security and nutrition, to alleviate poverty and hunger and to resolve related marital conflicts in their families and society as a whole.

## Masau (*Ziziphus mauritiana*)

Participants in the study also mentioned *masau* (*Ziziphus mauritiana*) as one of the primary indigenous wild fruits they consume for nutrition and household food security and for mitigating hunger and poverty. *Masau* fruits are a staple of the family diet, according to nearly all research participants. According to Nyanga et al. (2013), a large number of Zimbabweans eat *masau* (*Z. mauritiana*) fruits. When the fruits are in season, they provide a substantial contribution to people's diet. In the developing world, indigenous fruits are crucial for rural communities' economic well-being, health and nutrition, and food security (Saka et al. 2007). According to study participants, one of the primary indigenous wild fruits they use for household food security and nutrition and alleviating hunger and poverty is *masau* (*Z. mauritiana*). The majority of study participants stated that the family diet included *masau* fruits. Many people in Zimbabwe eat *masau* (*Z. mauritiana*) fruits, according to Nyanga et al. (2013). In season, the fruits make a substantial contribution to people's diets. Indigenous fruits are crucial for the economic well-being, health and nutrition, and food security of rural populations in developing nations, claim Saka et al. (2007). *Masau* fruits are also found in abundance in other parts of Zimbabwe such as Buhera, the Zambezi Valley, Mt Darwin, Bindura, Bocha and Muzarabani, where the *masau* trees cope with very high temperatures and dry conditions.

*Masau* fruits ripen during the dry season from May, and they are available until the end of September. The fruit is first green, turning yellow or red to brown as it ripens, and it has a pleasant flavour. During the fieldwork of this study (June–July 2023), *masau* fruits were in abundance, and we enjoyed these delicacies. When they are in season, Varemba women harvest the *masau* fruits, which are eaten raw and fresh. The women also sun-dry surplus *masau*, and they process them into various products such as porridge, indigenous cakes (*chimodho*) or indigenous drink [*maheu*] (Lilian, interview, 16 July 2023).

Like *marula* fruits, Varemba women also:

> '… [*f*]erment *masau* fruits to brew an indigenous beer called *kachasu*.' (Eunah, interview, 16 July 2023)

One study participant noted that:

> '*Tinodya masau kupedza zhara kana tiri kushanda mumunda uye anonaka nekugutisa chaizvo. Tinogona kumadyawo tapedza kudya chikafu.* [We eat *Ziziphus Mauritiana* fruits to eradicate hunger when we will be working in the fields and they are very delicious and fulfilling. We can also eat them as a desert after meals.]' (Audrey, interview, 20 July 2023)

Similar findings were revealed by Nyanga et al. (2008), who found that *masau* are utilised as food in Mudzi and Muzarabani districts in Zimbabwe. In Mberengwa, study participants indicated that to enhance food security and nutrition in their families for a longer period, they also preserve *masau* fruits using different methods. As one explained:

> '*Tinomadya* (*masau*) *ari manyoro. Tinochengetawo mamwe kuzodya munguva inotevera kana asisiko tichishandisa nzira dzakasiyana siyana. Sekuti tinogona kumabika, kucherera pasi, kumaomesa kana kumaisa munyu. Tinomachengetawo nekumaomesa muzuva, togadzira hupfu hwatinoshandisa kana isiri guva yemasawu. Izvi zvinobatsira kuti tinge tine chikafu chokupa mhuri dzedu nguva yoga yoga gore rose, izvo zvinounza runyararo mudzimba dzedu.* [We eat them (*Ziziphus mauritiana*) raw and fresh. We also preserve some for future use when they will be out of season. We use different methods of preservation and storage such as cooking them, burying them underground, drying or salting them. We also preserve the fruits by sun-drying them and processing them into a powder for out of season purposes. This helps to ensure that we have enough food to feed our families throughout the year.]' (Mai Noddy, interview, 14 July 2023 [author's own translation])

Another study participant noted that:

> 'Apart from consuming *Ziziphus Mauritiana* fruits, ensuring food security and nutrition and eradicating hunger, we also harvest and sell the fruits to generate some income. We use the money to meet other basic needs such as buying soap, sanitary pads, sugar or paying for treatment at public health institutions. The sale of the fruits help in eradicating poverty and creating harmony in our families. Some women actually make a living out of brewing *masau* beer.' (Mai Mumu, interview, 14 July 2023).

Some studies have revealed similar findings. Elago (2016) and Ham et al. (2008) stated that indigenous fruits are important cash plants for 26% – 50% rural communities and dietary supplements, especially during times of famine. In Zimbabwe, indigenous fruits have been reported to reduce poverty by at least 33% in households when in season (Chadare, Lantum & Mbiapo 2009; Mithofer & Waibel 2003). As a result of the positive impact of indigenous fruits on household income, harvesting of these fruits for marketing purposes is increasing annually (Elago 2016; Nemapare, Gadaga & Mugadza 2023; Ramadhani 2002). Kalaba, Chirwa and Prozesky (2009) also observe that indigenous fruits such as *Z. mauritiana*, *marula* and baobab fruit have always been consumed as survival strategy to escape hunger in poor households.

Among the Varemba, *masau* tree and fruit are also highly valued for their health benefits. According to Nyanga et al. (2008), extracts from *masau* fruits, leaves, roots and bark of

the *masau* tree are used as traditional medicines to treat the effects of insomnia, skin diseases, inflammatory conditions and fever. This study also found out that among the Varemba, besides their role in enhancing food security and nutrition, alleviation of hunger and poverty, the *masau* tree and fruits are also utilised as indigenous medicine:

> 'We use the *masau* fruits to treat headaches, coughs, indigenization, tuberculosis, flu, fevers and colds. We also use them to stimulate appetite. We boil the *masau* fruits and drink the extract to treat BP [*high blood pressure*]. The seeds help to cure eye diseases. Some babies suffer from colic problems. *Masau* roots are also a good remedy for such problems. We use the bark on boils and to treat dysentery.' (Mrs Rutenga, interview, 18 July 2023)

Nyanga et al. (2008) revealed similar findings in their study on the traditional processing of *masau* fruits (*Z. mauritiana*) in Zimbabwe. They further reported that the *kachasu* beer is a good remedy for persistent coughs. Similarly, Lu et al. (2021) observe that *Z. mauritiana,* also known as *Jujube*, a highly nutritious and functional food, is reported to have various health benefits. This study found out that among the Varemba, *masau* fruits are also highly prized for their health benefits in pregnant women. As one study participant explained:

> 'We encourage our women to eat *masau* fruits during pregnancy. *Masau* fruit has a high-water content which helps to improve hydration which is very important during pregnancy. Constipation is a common problem during pregnancy. The consumption of *masau* fruits, therefore, help in digestion and with bowel movements. Due to their high nutritional value, *masau* fruits are also good for the health and well-being of both the mother and foetus. Vomiting and abdominal pains are also a common problem during pregnancy. Eating *masau* seeds helps to stop vomiting and cures abdominal pains.' (Gogo Tshuma, interview, 17 July 2023)

The study found out that Varemba women in Mberengwa, as in other developing countries across the world, use natural products, such as the *Z. mauritiana* as the main source for an alternative system of medicine. Akash, Ali and Khera (2025) note that in India *Z. mauritiana* is traditionally used to treat diabetes, diarrhoea, chronic bronchitis, abdominal pains, fever, liver diseases, constipation, sleeplessness, urinary diseases, insomnia, wounds and abscesses. According to Chen, Liu and Zhang (2014), *Z. mauritiana* is one of the most valuable and superior herbal medicines in China. They are traditionally used to treat diabetes, diarrhoea, liver diseases, asthma, fever, wounds, abdominal pains, gastrointestinal disorders, abscesses, sleeplessness, constipation and urinary diseases (Jarald et al. 2009) and chronic bronchitis and insomnia (Afroz et al. 2014). They are used to treat ulcers, pulmonary ailments and cuts (Abalaka, Okwu & Okwu 2010). Jain et al. (2019) reported that the roots are used against skin diseases while the leaves are used to treat sores, to treat typhoid and have antioxidant, anti-bacterial, anti-inflammatory, anti-cancer, anti-microbial and hepatic protective effects. They are also used as sedatives (Abalaka et al. 2010; Lu et al. 2021). The *masau* tree and fruit have also been used in folk medicine by Varemba women from time immemorial. The women utilise *masau* as indigenous medicine to treat various kinds of diseases leading to healthy bodies.

## Conclusion

The article explored Varemba women's utilisation of indigenous wild fruits for food security and nutrition, hunger and poverty alleviation, and marital conflict resolution using Varemba women in the Mberengwa district, Zimbabwe, as a case study. It highlighted the significance of indigenous fruits for food security and nutrition focusing on *marula* (*S. birrea*) and *masau* (*Z. mauritiana*). The study foregrounds the pivotal role played by Varemba women in ensuring household food security and nutrition, hunger alleviation and marital conflict resolution in their families through the use of wild edible fruits. The study found out that Varemba women also utilise indigenous wild fruits for income generation to alleviate poverty, to resolve related conflicts and to foster harmony in their families and society at large. The research findings reflected that the selected indigenous fruits are used as a household conflict buffer and a resolution tool. In terms of economic instability, Varemba women desist from nagging their husbands for financial providence. Findings reported that when men are financially challenged, they become aggressive which, if not managed, can result in domestic violence. Hence, Varemba women foster harmony through gathering wild fruits, which serve as both a source of food and an economic asset. Money that is realised from the sale of these fruits can be channelled towards other household necessities. This demonstrates the agency of Varemba women as responsible wives and mothers who also contribute to the household's financial needs. The article, therefore, argues that through the utilisation of indigenous wild fruits such as *mapfura* (*marula*) (*S. birrea*) and *masau* (*Z. mauritiana*), Varemba women are making strides in ensuring household food security and nutrition, poverty and hunger alleviation (SDG1 and SDG2) and resolving related marital conflicts in their families and the society at large.

The findings on the agency of Varemba women in achieving multiple Sustainable Development Goals (SDGs) through their utilisation of indigenous fruits call for strategic interventions that can leverage this indigenous knowledge system for a broader impact. Therefore, the study suggests that community women can form a community savings fund through the collective harvesting, processing (drying, making jams etc. and juices) and selling of the surplus indigenous fruits. Women whose families are going through financial distress can be assisted through the savings fund, thereby reducing household tensions and fostering harmony through economic empowerment. The study also recommends the mainstreaming of indigenous knowledge into gender-responsive budgeting whereby specific funds are allocated for the training of women in sustainable harvesting, value-added processing and the marketing of indigenous fruits for food security and nutrition. This also entails the facilitation of capacity building and value chain development of indigenous fruits.

Furthermore, the study suggests the establishment of a formalised platform for knowledge sharing and dissemination. Such platforms should allow Varemba and other women in Zimbabwe and elsewhere to share knowledge on the use of indigenous fruits for food security, nutrition and conflict resolution.

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## CRediT authorship contribution

Silindiwe Zvingowanisei: Conceptualisation, Investigation, Methodology, Project administration, Resources, Writing – original draft. Anniegrace M. Hlatywayo: Conceptualisation, Formal analysis, Methodology, Project administration, Writing – original draft, Writing – review & editing. All authors reviewed the article, contributed to the discussion of results, approved the final version for submission and publication, and take responsibility for the integrity of its findings.

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## Data availability

Research includes both primary and secondary data. The data that support the findings of this study are available on request from the first author, Silindiwe Zvingowanisei. The data are not publicly available because it contains information that could compromise the privacy of the research participants.

## Disclaimer

The views and opinions expressed in this article are those of the author and are the product of professional research. They do not necessarily reflect the official policy or position of any affiliated institution, funder, agency or the publisher.


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