

Food Security: What is it all about?

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Summary

The term ‘food security’ has appeared as a buzzword in a variety of contexts in recent years. In particular high food prices and concern over the potential effects of climate change have been catalysts for discussion about food security as wealthy countries face the implications of challenges to food supply. In fact many of the issues associated with food security have been a long term challenge, particularly for developing countries.

This paper examines different applications of the term food security, government responses to these, and possible policy implications.

Use of the term ‘food security’ can be split into five broad contexts:

1. Global food security – Production and distribution of sufficient food to meet fundamental nutritional requirements around the world.
2. National food security – A nation’s ability to meet domestic food demand.
3. Household food security – A household or community’s ability to access food (particularly healthy food), given physical and income constraints.
4. Emergency food security – Continuity of food supply in the face of sudden disruptions.
5. Future food security – Given resource constraints and the threat of impacts from climate change, sustainable production of sufficient food to meet domestic and global food demands in the future.

These overlap and are used interchangeably. In some circumstances food security is being used to call for government action to deal with a variety of issues. Many of these go beyond the scope of food or agriculture, dealing with general issues of poverty (both domestic and international), inequality of income distribution, healthy eating, infrastructure, business competitiveness, contingency planning and free trade. In particular the debate over national food security often conflates food security and self sufficiency – particularly as a justification to maintain and support domestic agricultural production or for protectionism.

Within Victoria, government actions on food security include enabling a productive, competitive and sustainable farming sector through DPI’s Future Farming Strategy, DPI’s coordination of the Victorian Food Supply Security and Continuity Network to help plan

for emergencies that may disrupt the food supply, and VicHealth's work in collaboration with Local Government Authorities to reduce local barriers to access to food.

Introduction

The term 'food security' is attracting increasing media attention, both internationally and domestically. In part this is in response to surges in world agricultural commodity and food prices in 2007, the spectre of climate change and, locally, continuing drought in Victoria.

Food security is a multi-faceted and complex term, with varied applications. Within DPI and more broadly in government, food security is being used to refer to different concepts and contexts, with initial work on the topic undertaken by the DPI Agribusiness Group generating debate within DPI about the meaning and application of the term. This paper provides clarification on the definition of food security, discusses different applications of the term, and examines relevant federal, state and local government responses.

The most widely used definition is that agreed by the Food and Agriculture Organisation of the United Nations (FAO). This definition was adopted by representatives from over 180 countries – including Australia, with the Rome Declaration on World Food Security in 1996:

Food security exists when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.^[1]

Within this definition, a range of interpretations and applications are possible, depending on the purpose of the user. For developing countries, food security or insecurity may be a matter of life and death. For developed countries, longer term health consequences of poor nutrition linked to low incomes may be foremost. Applying a common term can imply an equivalency of the issues faced by developing and developed countries that is unlikely to be borne out in fact.

Within different applications of the term, a number of elements are identified as being common, and central, to food security:

- Availability: is there sufficient food to meet fundamental nutritional requirements?
- Affordability: do potential consumers have enough income to buy food?
- Access: can potential consumers obtain food via distribution systems?

Each of these elements is relative, relying on interpretations in different contexts. For example availability of food can mean availability of sufficient calories to survive, or sufficient nutrients for long term health. Similarly interpretations of affordability can vary depending on different incomes, priorities or required expenditure on other basic needs.

Other elements that are raised in various definitions include:

- Safety
- Nutrition
- Cultural appropriateness
- Healthiness
- Reliability
- Sustainability

Complicating food security further is the interdependence between food, water, energy, fuel and environmental security. The interdependence of the supply of agricultural and food production with the supplies of water, energy, fuel and environmental phenomena means that disruptions or limitations to the supply of any inputs to agricultural and food production, whether long term or immediate, may also challenge the consistent supply of food. For example, impacts on water supply in a region in turn have an impact on food production from that region. This inter-reliance of secure supplies of food with secure supplies of other inputs to food production therefore underpins the concept of food security.

Box 1: Food security in the popular press

In the popular press the term food security is used widely in a variety of ways. A scan of major Australian newspapers over the last year yielded over 300 articles related to food security. For the most part these clustered around international events, such as the Prime Minister's attendance at the G8, emphasising global food security issues. However regional newspapers also had significant coverage of food security from a more applied perspective, particularly the role of Australian producers in national and global food security.

High prices, biofuels, drought and climate change were consistent issues linked to food security.

The ability to grow enough food to support ourselves and the world, both now and into the future is the main emphasis of popular use of food security. Users of the term tended to be international multilateral organisations, government and opposition, farmer groups, aid groups and some scientists.

Applications

Applications of the term food security can be split into five broad contexts, which can overlap. This categorisation has been adapted from a comprehensive review by the UK Department of Environment, Food and Rural Affairs to take account of the Australian and Victorian Government contexts.[\[2\]](#)

1. Global food security

Production and distribution of sufficient food to meet fundamental nutritional requirements around the world.

In 2007 there were an estimated 923 million undernourished people in the world. Despite a focus on hunger as part of the international development agenda and an overall decrease in the proportion of undernourished people, this is virtually unchanged from 1990-92.^[3]

Over the last fifty years expansion in world food production has consistently outpaced growth in world population. Yet over this time chronic hunger has been an ongoing issue for a proportion of the world population. For the most part hunger has been linked to distribution of food and incomes, rather than overall shortages.

In recent years further increases in population, changing food preferences of growing middle classes in developing countries, speculative investment in agricultural commodities and increased demand for biofuel feedstocks have contributed to increased demand for food crops.

At the same time high oil prices, adverse weather conditions (for example drought in major agricultural product exporting countries like Australia), limited availability and/or increasing real cost of resources for agricultural production (such as land, water, fertilizer and energy), low productivity in developing countries and trade distortions have constrained growth in global food supply.

These interactions have been reflected in rising real global food prices, which in turn, have led to increased poverty, government budgetary pressures, and civil unrest in some developing countries. They have also sparked renewed debate over the security of the global food supply.

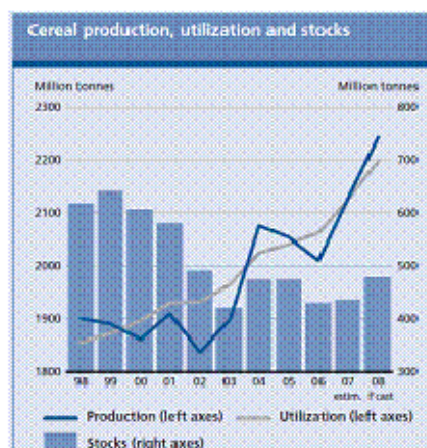
In 2008 the global food situation has changed significantly. World prices of major agricultural commodities have declined considerably in real terms from the record levels of the previous year. This is partly because production (particularly in developed countries) has increased in response to high real prices, although the global financial crisis, the reduction in crude oil prices and currency depreciations have also contributed.

While in the short term lower food prices have ameliorated some previous concerns about food supplies, the FAO asserts that this short term recovery does not solve the underlying issues of hunger and poverty associated with global food insecurity. The impacts of a global economic slowdown on demand and on the availability of credit for agricultural investment in research and production may worsen problems of hunger and poverty around the world.

Regardless of the fluctuations in global food prices experienced in wealthy countries, challenges to global food security will continue to be felt disproportionately by people in low income developing countries. This situation is not new, and food insecurity has been linked to a range of existing and ongoing social, economic, and political factors including

poverty, subsistence agriculture, inequality, poor governance, corruption and conflicts between and within countries. Despite improvement in the balance of global supply and demand for food, the FAO estimated in October 2008 that 36 countries around the world needed external food assistance because of crop failures, political conflict or insecurity, natural disasters and high real food prices.^[4]

Box 2: Global cereals market ^[5]



While the language of food security subtly favours a supply side perspective, the global food situation is much more complex than this and changes constantly. This is illustrated in the changing balance between cereal production and utilisation over the past decade.

2006-07 saw global production drop below utilisation, depletion of global reserves and associated high prices. In 2008 production has responded to high prices, and once again overtaken utilisation, although world stocks remain low.

Cereals, as predominately staple crops that are stockpiled around the world, provide a useful illustration of the constantly changing nature of the global food balance.

Government response

The problem of hunger around the world is being tackled internationally through multilateral channels. Most notably, the 1996 Rome Declaration on World Food Security and the World Food Summit Plan of Action advocated multilateral cooperation to address hunger around the world. For the most part multilateral initiatives do not focus simply on the supply of food, but on correcting underlying problems. Reducing poverty and income inequality and establishing conditions favourable to durable peace are seen as being ‘most conducive to achieving sustainable food security for all’.^[6]

Within Australia global food security is a priority of the Australian Government. In May 2008 the Government announced a \$30 million contribution to the emergency appeal of the World Food Programme (WFP). Federal agencies such as AusAID and the Department of Foreign Affairs and Trade focus on liberalising trade, providing emergency food relief, and investing in research and technical assistance to improve the productivity of agriculture in developing countries (for example through the Australian Centre for International Agricultural Research (ACIAR)), to address global food security.

Box 3: Federal response to food security [\[7\]](#)

At the federal level the most consistent use of the term food security is in relation to global food security. The Minister for Agriculture, Fisheries and Forestry Tony Burke, released a Ministerial Statement on Global Food Security in November 2008 with responses focused on:

- Providing immediate aid for the poorest nations in the world.
- Assisting developing countries with technology to be able to better feed their populations.
- Continuing the push for trade policy reform.
- Continuing to invest in research and development to maintain productivity, increase crop yields and minimise the impact on our environment.
- Preparing Australian agricultural industries to adapt and adjust to the impact of climate change.

The statement also emphasised opportunities for an exporting nation like Australia with wealthy nations demanding more produce, and the need to increase productivity to take advantage of that opportunity.

2. National food security

A nation's ability to meet domestic food demand.

Both domestic production and international trade contribute to national food security.

Obtaining adequate supplies of food can be a major issue for poor countries where agricultural production and economic resources are severely constrained - that is, agricultural production is insufficient or too irregular to provide adequate supplies and export revenue is too volatile or insufficient to confidently plan to import food shortfalls. For example, Sierra Leone is vulnerable to food insecurity as it produces little agricultural output, relies on agricultural imports, and has low per capita GDP. In contrast wealthier Japan with a food self sufficiency ratio of only 40% (despite a costly food self-sufficiency policy) is able to consistently import ample food. The combination of poverty and unreliable subsistence agriculture is a root cause of national food insecurity.

In some developing countries, governments have responded to short term rises in food prices by adjusting trade policies in an attempt to ensure sufficient supplies for citizens and exert downward pressure on domestic prices, both by restricting exports and lowering import tariffs.

Export restrictions are permitted under WTO rules for food security purposes as an exception to a general WTO prohibition. These can provide temporary domestic price relief, but at the expense of global food security, with higher world prices and less food supplied to the global market. They can also create perverse incentives for farmers, who potentially switch production to exportable commodities where prices are higher, placing further pressure on domestic supplies.

Consistent with the theory of comparative advantage, the OECD asserts that:

Agricultural trade enhances national and global food security by increasing the sources of food supply and lowering prices in importing countries, stimulating food production in countries that have a natural or structural advantage in agriculture, and increasing overall economic growth rates through a more efficient allocation of resources.[\[8\]](#)

The World Bank has shown that greater liberalisation of trade would result in increased farm output in most of the world, including by 5-6% each year in Africa.

For wealthy countries, at a national level, trade has been identified as assisting food security by diversifying risk. Diversified food imports can help a country insulate itself against risks that may otherwise threaten food security, for example disruptions to local production systems, risk of adverse weather, crop failures or disruptions to the imported inputs required for agricultural production. Other disruptions to the domestic supply chain and retail distribution system are risks regardless of whether food is imported or domestically produced.

Nevertheless, the debate over national food security often conflates and confuses the concepts of food security and food self sufficiency, particularly to attempt to justify maintaining and increasing support for domestic agricultural production or for other forms of protectionism.

Box 4: The UK context for national food security [\[9\]](#)

Much of the literature surrounding food security has come out of the UK, a country that is 60% food self-sufficient, and has an historical context of food supply problems during World War II – when self sufficiency was at its lowest at around 30-40%. The ratio peaked in the 1980s and has since declined to current levels, sparking renewed concern among the community.

Even in the UK, government debate and action on food security states that the UK is secure in its food supply, mainly due to diversified trade. The focus of discussion is on building resilience to deal with short term shocks and long term challenges, rather than building self-sufficiency.

The UK Department for Environment, Food and Rural Affairs recently released a paper entitled ‘Ensuring the UK’s Food Security in a Changing World’ for comment to inform a more detailed statement of food security policy, to be published later in the year.

This uses a wide interpretation of the term food security, addressing elements of global food security, emergency food security, and future food security.

Government response

At present national food security is not a concern for Australia or Victoria. As recognised by ABARE, even during a long-running drought, Australia consistently exports almost three times the value of the food it imports.[\[10\]](#) Although this is a crude measure of self-sufficiency it provides some indication of the national food security situation faced in Australia.

Responses to food security concerns in Australia are therefore more appropriately linked to other applications of the term such as pursuing free trade to build global food security, or ensuring productive and sustainable farming systems for future food security.

3. Household food security

A household or community's ability to access food (particularly healthy food), given physical and income constraints.

The concept of food security can be applied at a household level to hunger in developing countries, as well as to low income earners in otherwise rich countries - with different implications for policy.

The urban poor in low income developing countries spend up to 60% of their income on food. This is compared to an average 17% in Australia (up to 20% for low income earners).[\[11\]](#)

Notwithstanding this gap, in wealthy countries like Australia there is a body of nutrition and dietetics literature that uses the term food security in reference to food access constraints on local vulnerable populations, particularly focusing on 'regular access to healthy eating'.[\[12\]](#)

Non-government organisations, like the Red Cross, also emphasise the issues of access to affordable healthy food faced in particular communities, for example remote aboriginal communities.

VicHealth considers that 5% of Victorians experience food insecurity, based on responses to the question: "In the last 12 months were there any times that you ran out of food and couldn't afford to buy more?"[\[13\]](#)

Groups identified by VicHealth as vulnerable to food insecurity include those on low incomes, those with a disability, the chronically ill, single parents with dependant children, Kooris, refugees and asylum seekers, and new arrivals from socially and linguistically diverse groups.

This application of food security emphasises the role that physical access and affordability may play in poor food choices – which in turn can be linked to poor nutrition, obesity and related diseases. For example location, without a car, in low socio-economic index areas

lacking infrastructure such as public transport, supermarkets and fruit and vegetable shops is identified by VicHealth as a key factor contributing to household food insecurity.

Food choices and eating patterns are influenced by a wide range of social, environmental and cultural factors. For example the ‘affordability’ of food – and a healthy diet in particular - is a complex concept. Other priorities within budgets, living in high cost areas, time available for food preparation, subjective notions of affordability for different types of foods, and changes to expenditures on housing, utilities, medical care, transport and child care, can all influence income allocation and the affordability of food.[\[14\]](#)

Box 5: Household food security in the United States [\[15\]](#)

The United States Department of Agriculture (USDA) regularly measures ‘Household Food Security in the United States’, with food security measured on a spectrum from high to very low food security. This measurement is based on survey responses to questions related to a number of different food insecure conditions and behaviours. This evaluation of household food security is linked to Food and Nutrition Assistance programs, such as the Supplemental Nutrition Assistance Program (SNAP) which helps low income households buy food - focusing on income sufficiency, rather than physical access or poor food choices.

Government response

At a federal level in Australia the most obvious government response to household food security is the role of the social security system to provide or supplement income generally, including for expenditure on food.

In addition, over the last eight years VicHealth has identified food security as an issue for some Victorians and focused on food security as underpinning its investments in healthy eating, as outlined in the Food Security Investment Plan 2005-2010.

This focuses health promotion activities on barriers to access to healthy food choices, in particular working with local governments to address food access on a local level. The Food for All program, for example, funded nine Local Government Authorities in addressing systematic and infrastructure barriers to food access.

4. Emergency food security

Continuity of food supply in the face of sudden disruptions.

Following terrorist activity in the early 2000’s the World Health Organisation recognised that ‘the prospect of malicious contamination of food for terrorist purposes is a real and current threat’.[\[16\]](#)

This concentrated attention on vulnerabilities in the food supply chain and responses to supply chain disruptions, regardless of the cause.

Sudden disruptions to the supply of food have the potential to threaten the ability of citizens, of any income, to access food. These disruptions may arise from a number of sources, including malicious disruption, natural disasters and accidents, pandemics, industrial action and biosecurity threats.

Scale, pervasiveness and duration influence the impact an incident will have on food security. Most disruptions will be dealt with through ordinary responses, without seriously threatening food security. For example a disruption to one part of the supply chain may be addressed by bypassing it or consumers may substitute in response to a disruption affecting one product.

It has also been suggested that the development of the modern industrialised food supply chains has created new vulnerabilities to disruptions, for example with consolidation in grocery retail, logistics consolidation towards less, larger distribution centres, and changes in stock-holding and distribution practices like just-in-time inventory keeping. However, in many cases these changes have also enabled better accessibility and affordability of food, as well as responsive and informed supply chain management practices and business continuity planning to address risks.

Government response

At a federal level, the Food Chain Assurance Advisory Group, a partnership between government and industry, was formed in 2003 as part of the [Trusted Information Sharing Network](#) for Critical Infrastructure Protection, to look at food safety and security arrangements and to identify potential gaps and vulnerabilities. This group has developed a National Food Chain Safety and Security Strategy, recognising that ‘while it is neither possible nor economically sensible to attempt to deal with every risk,’ there is a need to encourage an awareness of food security risks.^[17]

Within DPI, Biosecurity Victoria contributes to this by coordinating the Food Supply Security and Continuity Network under the Victorian Framework for Critical Infrastructure Protection from Terrorism. This is directed at collaborating with the food industry to ensure that appropriate strategies for mitigating risks and ensuring the rapid recovery of food supply are in place for emergencies and catastrophic incidents.

5. Future food security

Given resource constraints and the threat of impacts from climate change, sustainable production of sufficient food to meet domestic and global food demands in the future.

Future food security can refer both to ongoing and future challenges to world food supply or to domestic challenges to Australia’s ability to continue producing food, particularly in the face of a changing climate.

Climate change has been a major catalyst for the application of food security in this context. For example the Garnaut Climate Change Review identified ‘diminished food

production and higher prices, with nutritional consequences' as a health risk for Australia associated with climate change.[\[18\]](#)

However, water and arable land constraints, nutrient and soil loss, biofuels, loss of biodiversity, reliance on fossil fuels (both for fuel and for making fertilisers), international conflicts, financial challenges, skills shortages and decreasing agricultural research and development are all cited as threats to future food security.

In particular, concerns over future food security recognise the reliance of food production systems on current resources and infrastructure that may not be possible into the future. For example, shortages of supply and/or rising real costs of basic agricultural inputs such as fuel or water could, in the long term, represent challenges for producers of food. Similarly reliance on phosphate fertiliser from non-renewable sources may affect soil health and the quality and fertility of land available for agricultural production. Research into these and other problems is therefore frequently cited in discussions about future food security as critical to combating declining growth in agricultural productivity.

In this context, rhetoric with reference to food security is used to promote action covering a wide range of environmental sustainability issues and climate change. A good example is the Sustainable and Secure Food Systems For Victoria report released in April 2008 by the Victorian Eco-Innovation Lab, funded under the Our Environment, Our Future – Environmental Sustainability Action Statement. This report advocates on a wide range of environmental issues, tenuously linked together under the banner of a secure food supply. In a similar vein, a recent report sponsored by the Australian Conservation Foundation Paddock to Plate: Time to Rethink Food and Farming discussing 'sustainable and resilient farming systems' was launched under the banner of a secure food supply.[\[19\]](#)

Government response

The diverse issues that are linked to future food security are addressed through different policies related to sustainable farming systems, trade, research and development and capability growth.

Specifically, at a federal level, in response to discussion at the Australia 2020 Summit, a Food Security Unit has been established in the Department of Agriculture, Forestry and Fisheries to consider national and global food security matters.

In Victoria, the Future Farming strategy aims to enable farm businesses to become more productive, competitive and sustainable as they enter an era of unprecedented change, addressing many of the diverse issues associated with food security.

Other Victorian Government initiatives, such as Our Water Our Future addressing long-term security of water supplies, also contribute to the security and continuity of supply of key inputs into food production.

Box 6: Senate Inquiry into food production in Australia [\[20\]](#)

On 25 June 2008, the Senate referred the following matter to the Select Committee on Agricultural and Related Industries:

Food production in Australia and the question of how to produce food that is:

- affordable to consumers;
- viable for production by farmers; and
- of sustainable impact on the environment.

The reporting date for the inquiry is 27 November 2009.

While the inquiry does not specifically use the term food security, the federal opposition used the term extensively in launching the inquiry.

Reform agendas exploiting food security

The term food security is being increasingly used to advocate on a wide variety of issues. In many cases what is meant by food security is unclear, with users conflating and confusing different applications of the term, for example tying together nutritional impacts on human health associated with household food insecurity, and potential impacts of climate change affecting food production in the future.

A recent example is an article in *The Age* entitled ‘Call for action as state food security at risk’. Unsupported statements such as ‘Victoria is at risk of being unable to feed itself if the current drought continues’ and ‘governments fail to safeguard the state’s food chain’, are used in press articles like this one to call for government action on a range of issues.[\[21\]](#)

Within the popular press over the past year food security has been employed to call for:

- Increased immediate food aid to developing countries, particularly in response to the ‘food crisis’ associated with rising food prices.
- International trade liberalisation, particularly via the WTO Doha negotiations.
- Increased aid in the form of agricultural research extension to developing countries for farming in the face of climate and other challenges.
- Protection of farming sectors, for example promoting the use of water for agriculture to feed people in relation to water policy in the Murray Darling Basin.
- Increased research investment in agriculture and water management.
- Better urban planning and access to transport as relevant to health.
- Government action on emergency food security, such as awareness raising and stockpiling.

- Action on climate change, and consideration of the impact on food of responses to climate change.
- Support for, or opposition against, the growing of genetically modified crops.

Box 7: Food security at the Australia 2020 Summit [\[22\]](#)

Under ‘Future Directions for Rural Industries and Communities’ at the Australia 2020 Summit, Food Security was one of the outcomes of the Agriculture sub-group. The outcome sought was ‘development of a national food security plan for Australia’, and the main ideas for achieving this outcome were:

- Establishment of a government unit to consider national and global food security matters and develop and implement new policies.
- Examination of projected national food demands and the production systems required to enable sufficient food production to continue within Australia’s environmental and resource constraints.
- Promotion of healthy food to tackle societal problems such as obesity and measures that ensure human capital is retained in remote, rural and regional Australia.
- Future policy being careful not to create food shortages by providing more favourable incentives for agriculture to participate in carbon markets.
- Assessment of the crucial role of honey bee pollination in food production and adequate support for the honey bee industry.
- Implementation of safeguards and building of industry capacity to preserve the genetic diversity of our plants and animals, including protection from exotic disease incursions.

Conclusion

The term food security will continue to be used to rouse community concern and underpin calls for government action on a range of issues. Many of these issues go beyond food or agriculture and relate to wider issues such as poverty (both domestic and international), income inequality, healthy eating, infrastructure, business profitability, contingency planning and free trade. Many, such as international aid and trade and national social security policies, fall clearly under federal jurisdiction.

DPI’s principle contribution to food security is through the Victorian Government’s Future Farming strategy to support the sustainable and competitive production of food by farmers in Victoria.

In addition, DPI has a role related to emergency food security through Biosecurity Victoria’s coordination of the Victorian Food Supply Security and Continuity Network to help prepare and plan for emergencies that may disrupt the food supply.

In relation to ‘household food security’, other relevant Victorian Government initiatives focus on access and nutrition. In particular VicHealth is working in collaboration with Local Government to reduce local barriers to accessing healthy food.

Box 8: Indicators of food security

As with the applications of food security, there is no one simple measure for food security – rather a number of crude proxies that provide some indication on different aspects of food security.

At a basic level, the 923 million undernourished people in the world provide an indication of global food insecurity – however the impact of issues of distribution rather than supply complicates this measure.

National food security is often associated with measures for self-sufficiency, for example comparing food exports and food imports or comparing production and consumption of various commodities. Australia consistently exports almost three times the value of the food it imports, while production of cereals, meat, and milk far outstrips domestic consumption.^[23]

Alternatively food self-sufficiency rates can be calculated on a calorific basis, with different foods converted into a common measure of energy, and the ratio that can be supplied domestically calculated. On this basis Japan’s Ministry of Agriculture, Forestry and Fisheries estimated Australia’s food self-sufficiency at 230% in 2002 – compared to 119% for the US, 74% for the UK, and 41% for Japan.^[24]

These measures are complicated by the fact that ‘food’ goes through varied amounts of value adding, and can be used in a variety of ways – often not in the most efficient manner for basic nutritional sufficiency and including for purposes other than human consumption.

Another oft cited food security measure is the number of meals or days food available at any one time whether locally or globally, or of global stockpiles of staples like cereals. Again this suffers from the complicated nature of food production where food supplies are constantly used and replenished, and many commodities simply can not be stored for long periods.

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