



KINGDOM OF CAMBODIA

Nation Religion King

# Cambodia Agriculture Survey 2021

## Report 2: Crop Production



National Institute of Statistics, Ministry of Planning  
in collaboration with Ministry of Agriculture,  
Forestry and Fisheries.



Food and Agriculture  
Organization of the  
United Nations

With technical support from the Food and  
Agriculture Organization of the United Nations.



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# Note on Report Structure

The Cambodia Agriculture Survey 2021 analysis and reporting is split into 5 published written reports and additional statistical materials covering different aspects of the results as follows:

## 1. Report 1: Methodological Reference Document

This report covers the background information of the survey. It includes the foreword and preface notes; the technical committee involved in the survey; acronyms and abbreviations used in the reports; an executive summary of the analysis from all reports; the scope, coverage and sample design of the data collection.

## 2. Report 2: Crop Production

This report covers crop production in Cambodia by household holdings and includes information related to the number of holdings involved in both temporary and permanent crop production; land under agricultural usage; the area of planted and harvested crops; the yield of crops; use of fertilizers, chemicals and irrigation; types of seeds/plant varieties grown; soil types used and effects of erosion; and the value of crop sales.

## 3. Report 3: Livestock and Poultry Raising

This report covers household holdings involved in the raising of livestock and poultry. Included within the report are the number of holdings engaged in raising livestock and poultry; the total number of animals in Cambodia; the average number of animals per holding; the purpose of raising animals; the value of sales from animals and the related input costs.

## 4. Report 4: Aquaculture and Capture Fishing

This report covers household holdings involved in aquaculture and capture fishing activities. Included within the report is the number of holdings engaged in different types of aquaculture; the total area devoted to aquaculture; species raised by aquaculture and the volume of them produced; households engaged in fishing activities by water type; species fished; and total catch volume.

## 5. Report 5: Labour and Economy

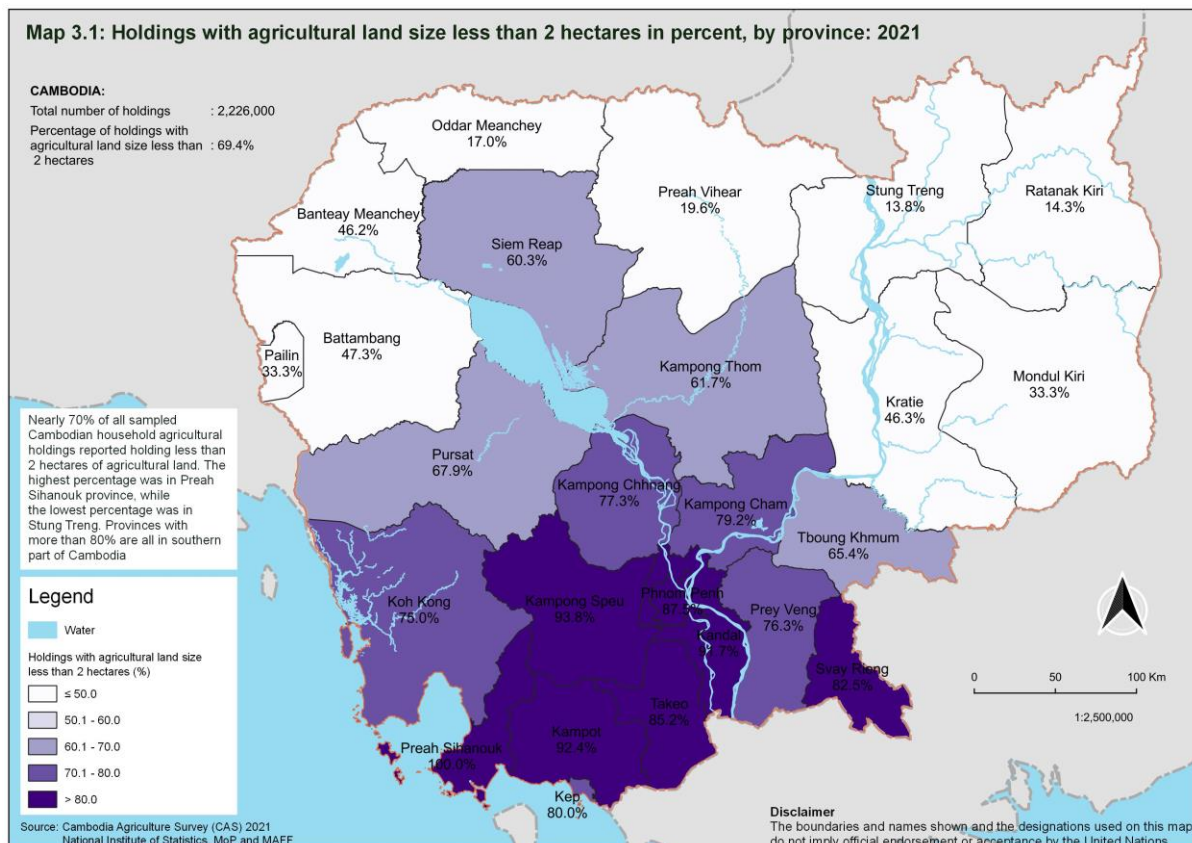
This report covers the rotating module of CAS 2021 and includes information on household and external workers on holdings; renting in; purchase and rent prices; expenditures of holdings; value of agricultural output; destinations of agricultural production; wages of external workers; holding profitability; participation in farmer associations; shocks affecting holdings and the responses to them including insurance and credit; loans and savings.

All 5 reports are available for download from the NIS website (available at: <http://www.nis.gov.kh/index.php/km>). These reports aim to provide an overview of the data included within the CAS 2021. They, however, are not fully comprehensive and some questions are not analysed within the scope of these documents. The information is analysed and presented, in most cases, at the national or regional level. Data users are encouraged to

explore and conduct their own analysis using the full data tabulations disseminated on the NIS website (available at: <http://www.nis.gov.kh/index.php/km/>), the CAMSAT data tables (available at: <https://camstat.nis.gov.kh/>) and the full anonymized microdata (available at: <https://microdata.nis.gov.kh/>).

# Agricultural area

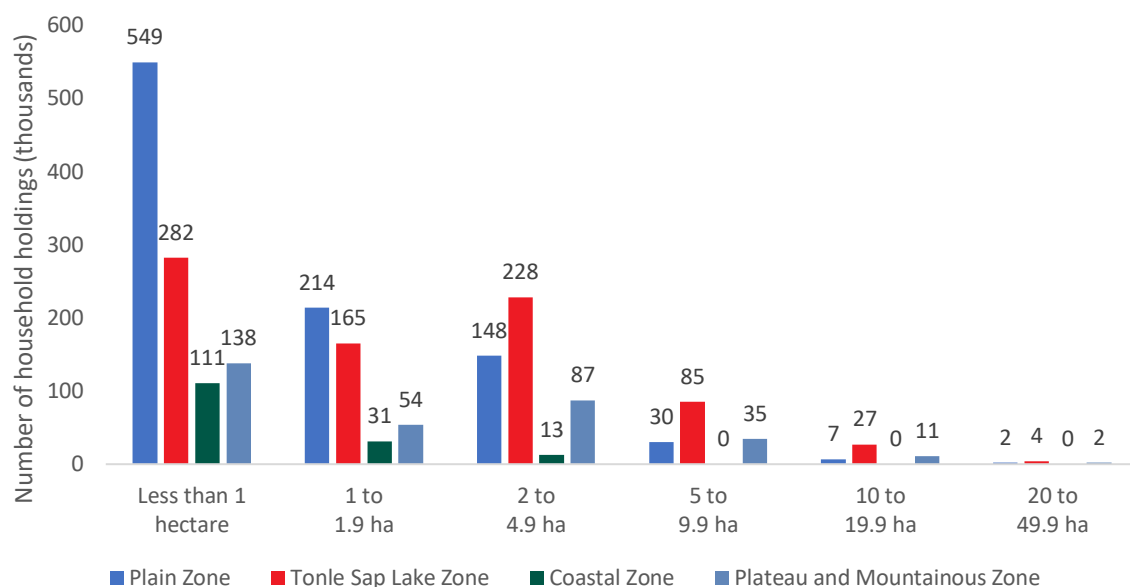
Cambodia has a total household owned agricultural area of approximately 4,088,100 hectares. The largest zone in terms of agricultural size is the Tonle Sap Lake zone with 1,972,400 hectares of agricultural land. This is followed by the Plain zone (1,186,800 hectares), Plateau and Mountainous zone (799,200 hectares), and the Coastal zone with a much smaller area at 129,700 hectares of agricultural land.



Source: Cambodia Agriculture Survey 2021 (CAS 2021) Selection of Thematic Maps; NIS-MOP, MAFF 2023.

Most household agricultural holdings are small. Approximately 49% of the household holdings have less than 1 hectare and the average size across all of Cambodia is 2.0 hectares. The Coastal zone has the smallest holding size on average at only 0.9 hectares. On the other hand, the holdings in the Tonle Sap Lake zone and Plateau and Mountainous zone are much larger on average at 2.7 hectares and 2.6 hectares respectively.

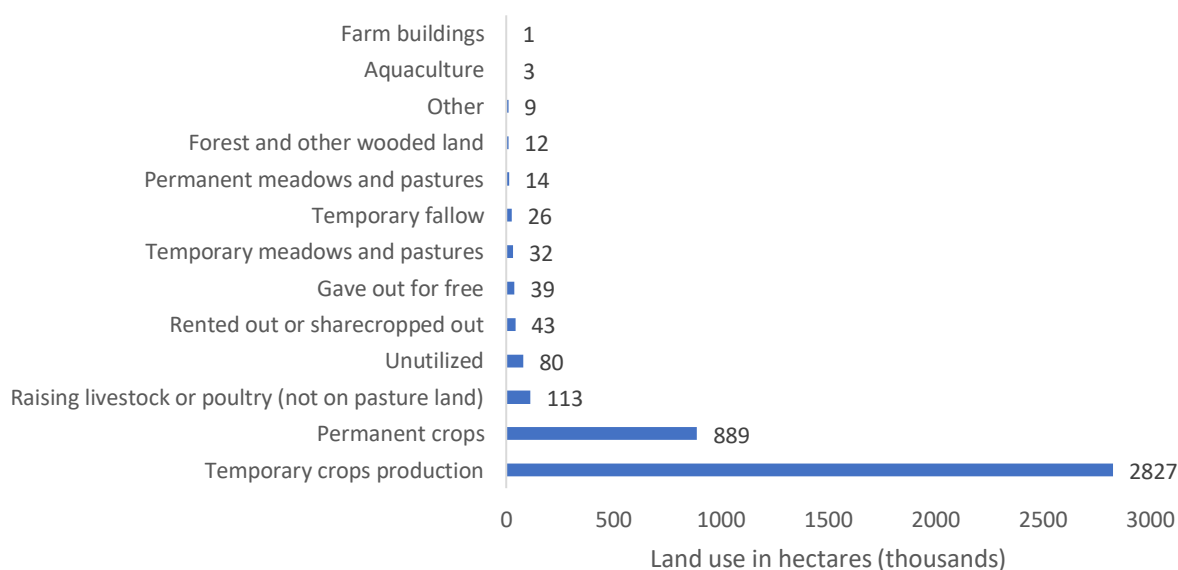
Figure 2.1: Size of household agricultural holdings, by zone, 2021



Source: CAS 2021

Although agricultural land may be used for a plethora of activities, temporary crop production is predominantly the main land use in Cambodia. More than 2.8 million hectares of agricultural land is used for temporary crop production. In comparison, permanent crop production, the second largest land use, uses roughly one-third as much land with 889,200 hectares being used. Livestock or poultry production, the third biggest land use, uses only 113,100 hectares in comparison.

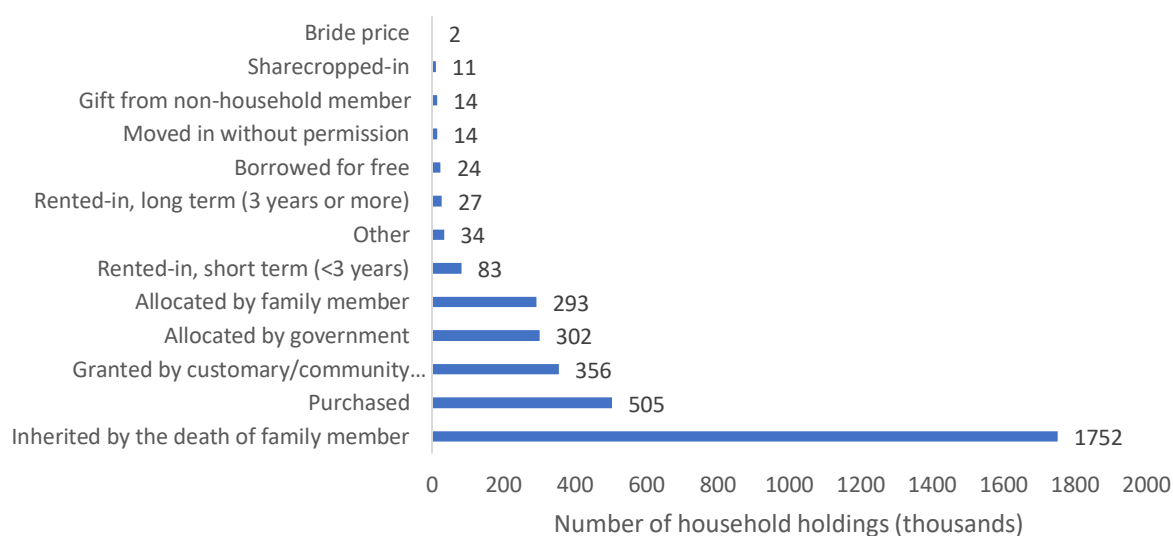
Figure 2.2: Agricultural land use in hectares, Cambodia, 2021



Source: CAS 2021

Agricultural land parcels are most frequently acquired by inheritance (in 1.7 million parcels). The purchase of a land parcel was accounted for in 504,970 of the parcels. Positively, only 14,380 parcels were reportedly ‘moved in without permission,’ although respondent bias may result in this being underreported.

2.3: Method of parcel acquisition by household agricultural holdings, Cambodia, 2021



Source: CAS 2021

## Crop production

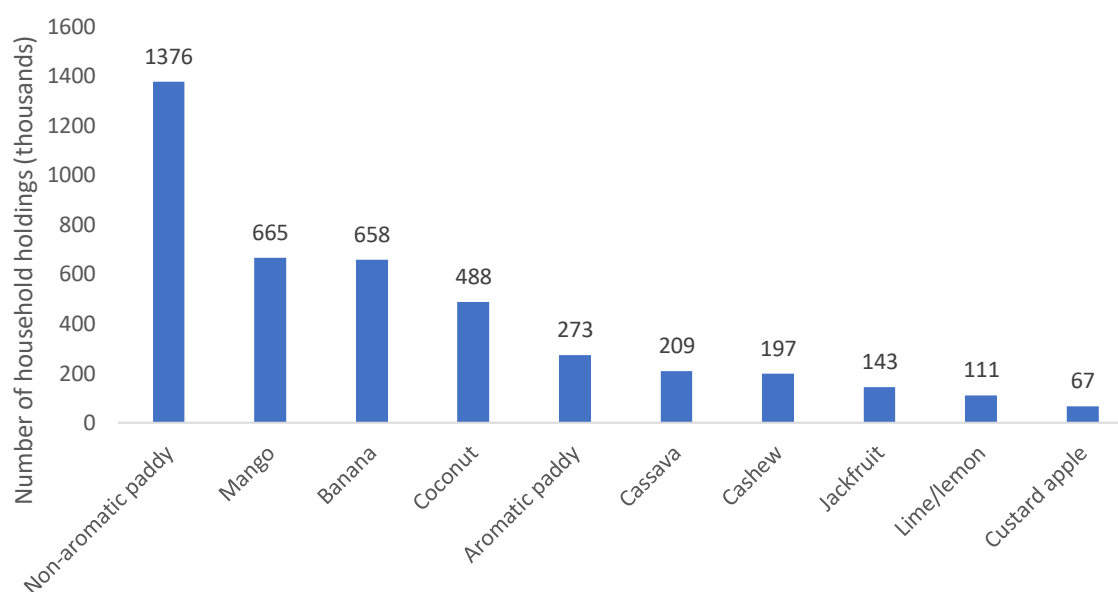
The primary activities undertaken by household agricultural holdings in Cambodia were the growing and harvesting of temporary and permanent crops. Of the total 2.23 million household agricultural holdings, 2.05 million household agricultural holdings reported growing crops.

Temporary crops are those with a growing cycle of less than one year and after harvest, they are either re-sown or replanted for another production cycle. Temporary crops presented in the CAS were those grown seasonally during the reference period. Permanent crops are those with more than one-year growing cycles, found to be standing and productive within agricultural holdings.

Due to the numerous types of crops grown in Cambodia and an effort to reduce respondent burden and interview length, detailed data was collected on the top 30 crops in Cambodia, as defined by MAFF. For these top 30 crops, respondents provided information in terms of area planted, area harvested, quantity harvested, fertilizer use, pesticide use, irrigation use, and the share of production both sold or kept for the holding's own use. To ease the respondent burden, data for permanent crops were collected in either hectares or the number of trees, based on the preference of the respondent. As such, the data reported in the number of trees was standardized to hectares based on the conversion factors provided by the Ministry of Agriculture, Forestry and Fisheries (Annex 1).

Data users need to note that the procedures used in the CAS 2021 differ from procedures used in other agriculture assessment efforts in Cambodia. CAS 2021 is a probability-based sample survey which procedurally relied on self-reported data at the holding level in terms of a specific reference period from 1 July 2020 through 30 June 2021 and had limited coverage of the non-household agricultural sector. As a result, overall areas, production totals and calculated yields for crops may differ from other data sources.

Figure 2.4 Number of holdings reporting crops (top 10 crops), Cambodia, 2021



Source: CAS 2021

The data show the top ten planted crops: non-aromatic paddy, mango, banana, coconut, aromatic paddy, cassava, cashew, jackfruit, lime/lemon, and custard apple. 1.38 million household agricultural holdings planted non-aromatic paddy, the crop grown in the second most number of holdings was mango in 665,000 holdings.

## Temporary Crops

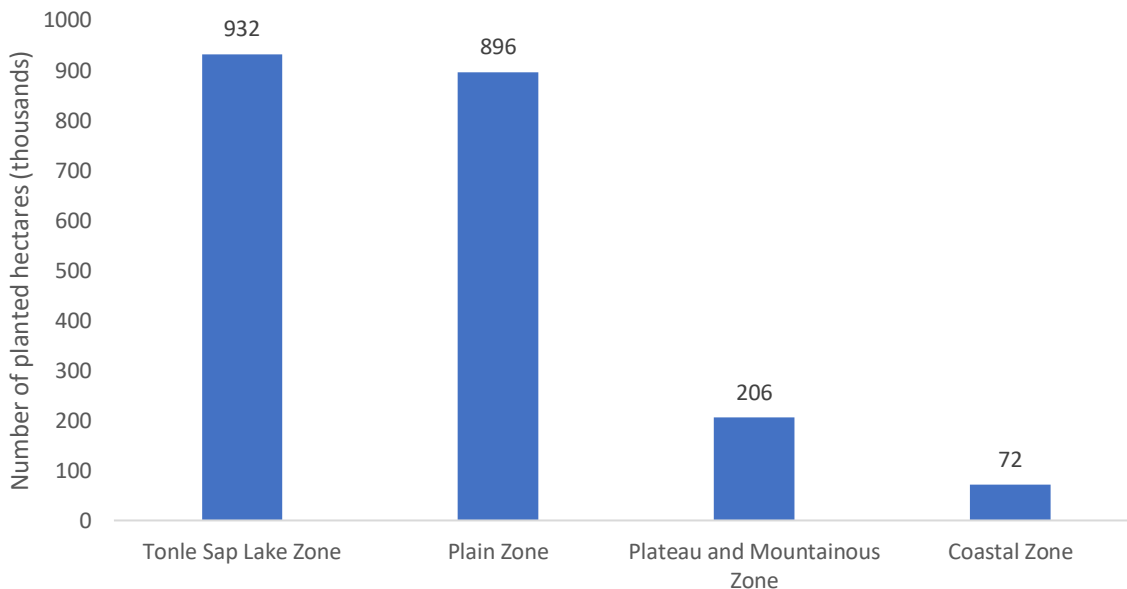
### Cereal and Grain Crops

The two major crops grown in this category were rice and maize. The types of rice grown included non-aromatic, aromatic, and glutinous (sticky) rice. Maize was considered as the white/yellow/violet corn variety.

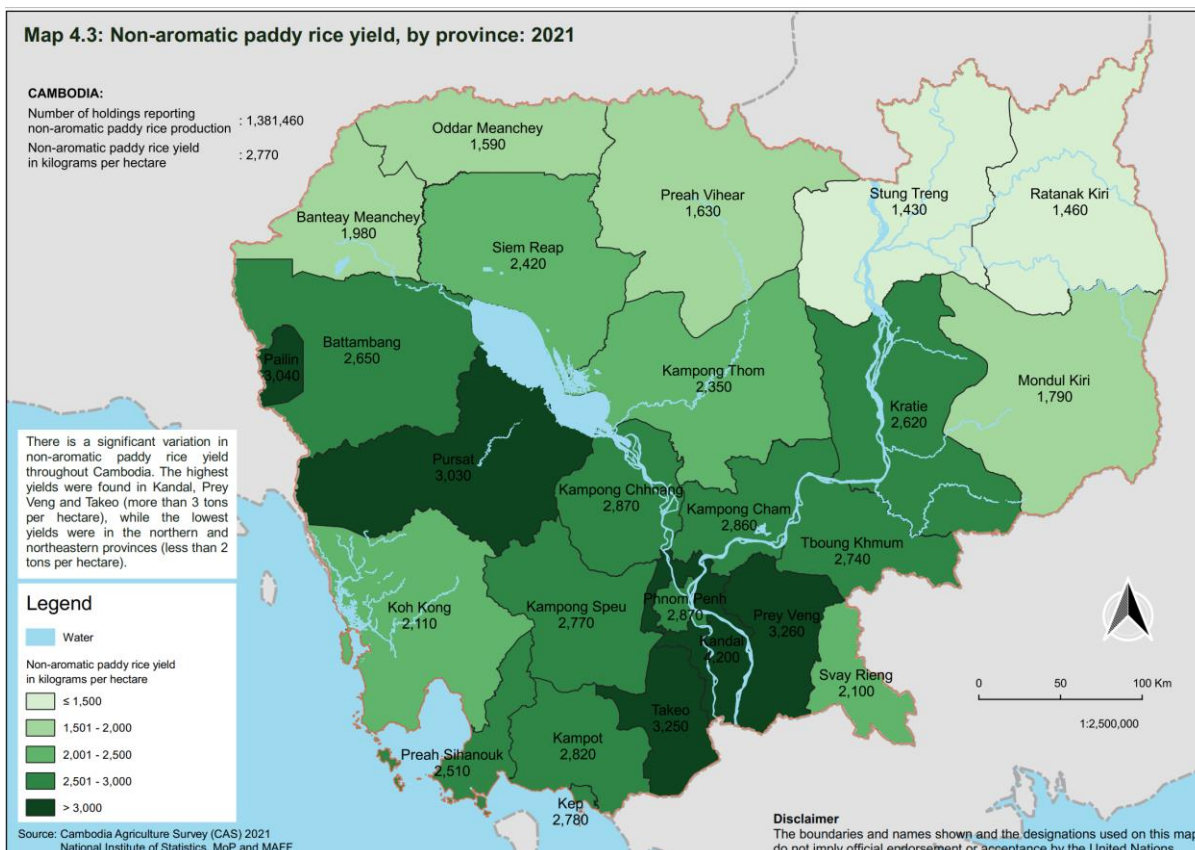
Of the three types of rice, non-aromatic varieties were the most common by far, with planted area estimated at 2.10 million hectares and harvested area estimated at 2.08 million hectares. The average production per harvested hectare of non-aromatic rice varieties was estimated at 2,770 kilograms with a total of 5.89 million tonnes of non-aromatic rice harvested. The Tonle Sap Lake Zone grew the most non-aromatic rice, with 932,000 hectares planted followed by

the Plain Zone with 896,000 hectares, the Plateau and Mountainous zone with 206,000 hectares and the Coastal zone with 72,000 hectares planted.

Figure 2.5 Non-aromatic rice planted in hectares, by zone, 2021



Source: CAS 2021

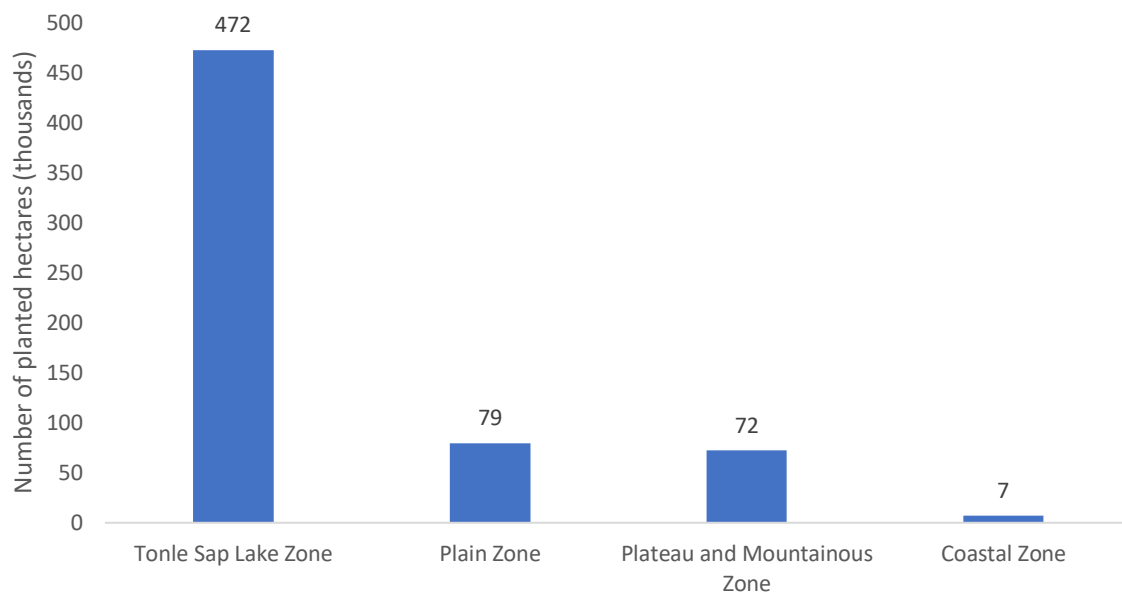


Source: Cambodia Agriculture Survey 2021 (CAS 2021) Selection of Thematic Maps; NIS-MOP, MAFF 2023.



Aromatic varieties were planted on roughly 631,000 hectares in Cambodia, with 620,000 hectares harvested. The average production per harvested hectare of aromatic rice varieties was estimated at 2,350 kilograms with the total quantity harvested in Cambodia estimated at 1.48 million tonnes. Unlike non-aromatic varieties, most production of aromatic rice is concentrated in the Tonle Sap Lake zone with 472,000 hectares planted there.

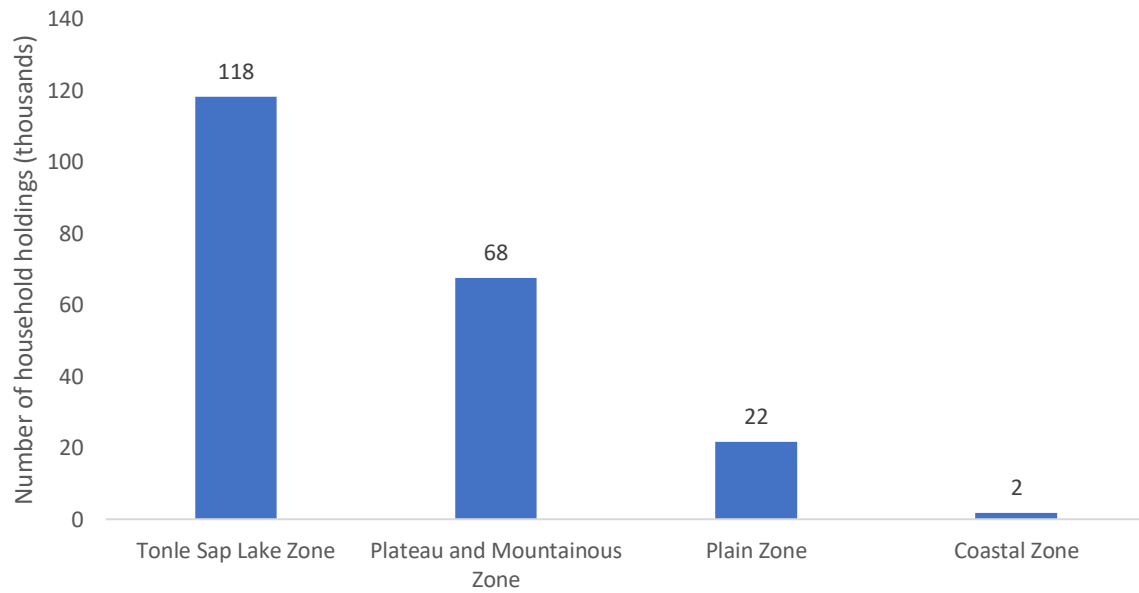
Figure 2.6 Aromatic rice planted hectares, by zone, 2021



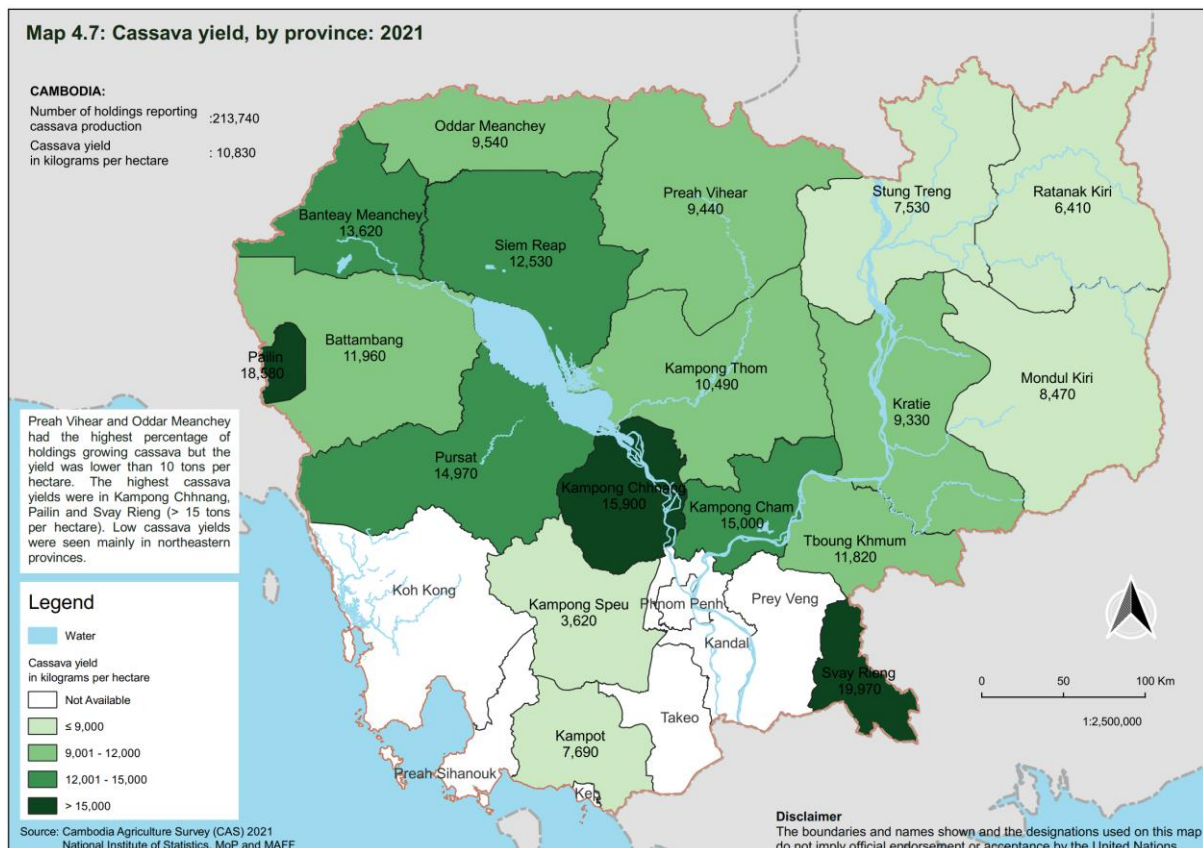
Source: CAS 2021;



Figure 2.7: Cassava, household holdings reporting, by zone, 2021



Source: CAS 2021



Source: Cambodia Agriculture Survey 2021 (CAS 2021) Selection of Thematic Maps; NIS-MOP, MAFF 2023.

## Temporary Oilseed Crops

The CAS collected data on oilseed crops, of which soybean was the most prominent in Cambodia. A total of 15,000 hectares of soybean were planted and harvested with 21,000 tonnes produced and a yield of 1,500 kilograms per hectare.

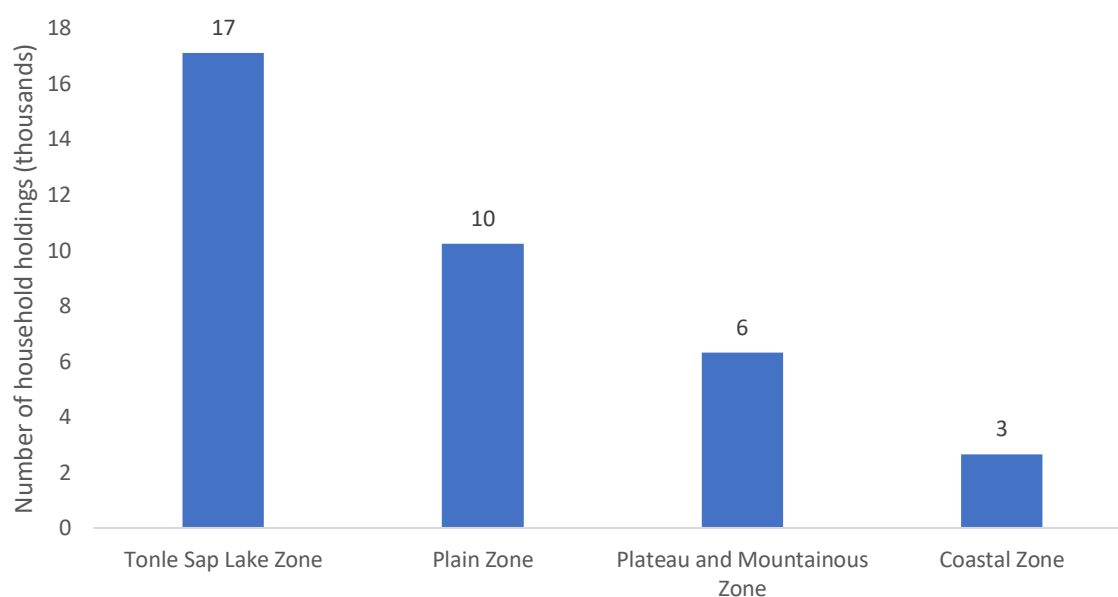
## Spices, Condiments, Aromatic and Medicinal Plants

Information collected on spices, condiments, and aromatic and medicinal plants in the CAS included lemon grass, mint and betel leaf. The number of households reporting the growing of lemon grass was estimated at 62,000, with 21,000 growing mint, and 3,500 growing betel leaf.

## Industrial Crops

Sugarcane was among one of the industrial crops covered by the CAS. 36,000 household agricultural holdings planted sugarcane in Cambodia, with 17,000 of them being in the Tonle Sap Lake Zone. Overall in Cambodia, the yield of sugarcane was 22,620 kilograms per hectare.

Figure 2.8 Sugarcane, household holdings reporting, by zone, 2021



Source: CAS 2021

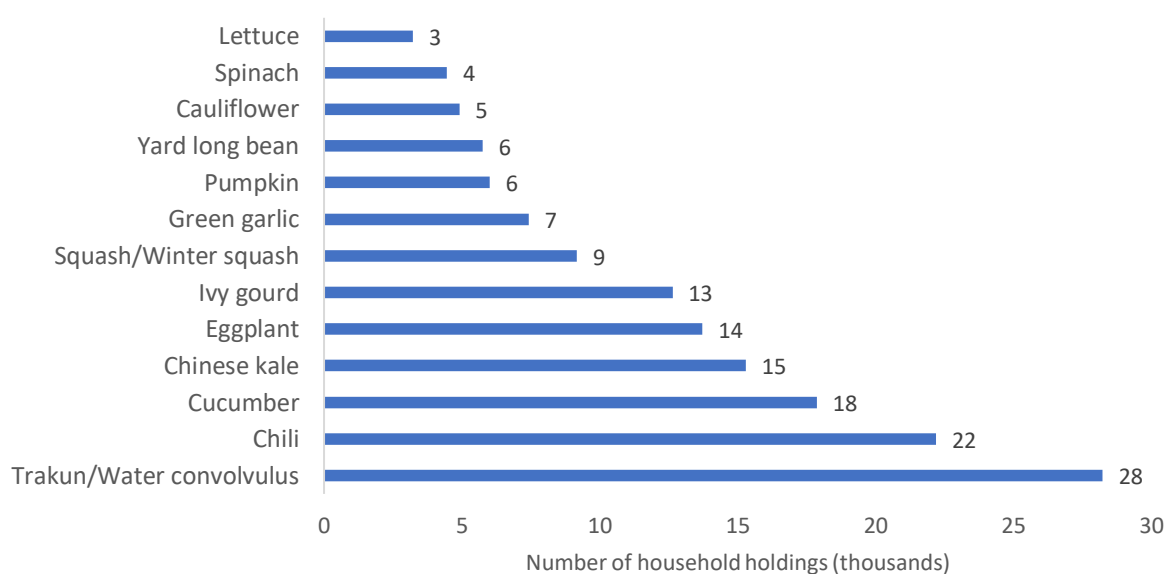
## Vegetables

A wide variety of vegetables were cultivated across the country, including leafy or stem vegetables; fruit-bearing vegetables; root, bulb and tuberous vegetables; leguminous green vegetables, etc. Leafy or stem vegetables included green garlic, spinach, Chinese kale, lettuce and trakun/water convolvulus. Fruit-bearing vegetables covered by the CAS included chili, cucumber, eggplant, ivy gourd, pumpkin, and squash/winter squash. Leguminous green vegetables included yardlong beans. Other vegetables include cauliflower.

Trakun/water convolvulus was the vegetable reported in most household holdings with 28,000 household holdings growing it. Cucumber was grown by 18,000 households in Cambodia with

an area planted and harvested of around 3,000 hectares. The total production for cucumbers was 27,808 tonnes. Eggplant was grown by approximately 14,000 households in Cambodia and had an average yield of 16,200 kilograms per hectare. Pumpkin was grown by 6,000 households in Cambodia, with an average yield of 13,450 kilograms per hectare. Yardlong bean was grown by an estimated 6,000 households in Cambodia, with an area planted and harvested of 300 hectares with an average yield of 9,090 kilograms per hectare.

Figure 2.9 Vegetables, household holdings reporting, Cambodia 2021



Source: CAS 2021

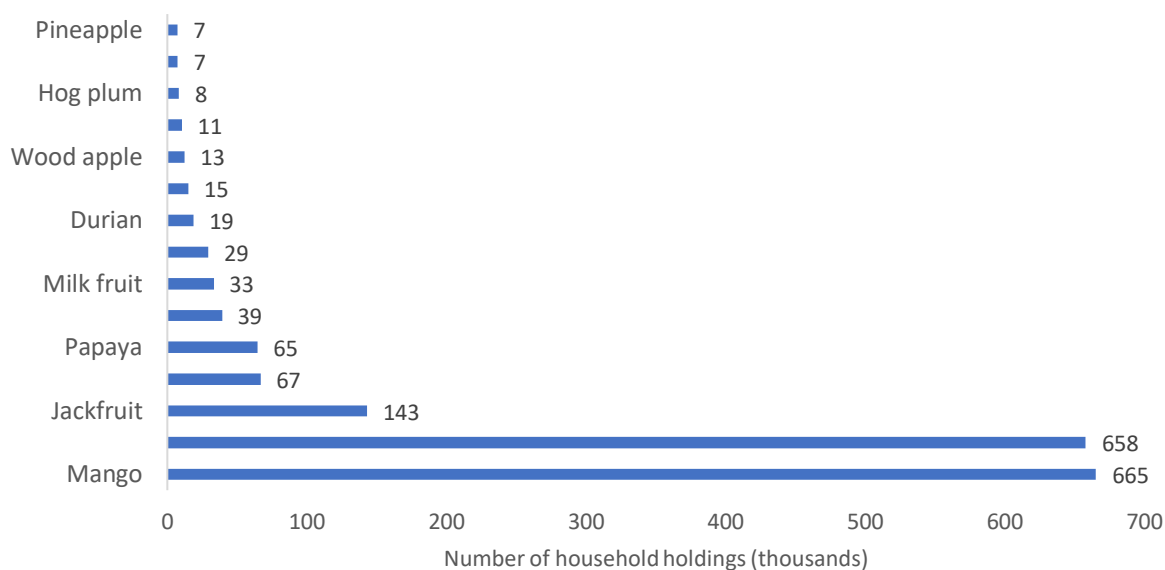
## Permanent Crops

### Fruits

Citrus fruits were found in abundance in Cambodia, and the crops covered by the CAS included grapefruit and pomelo; lime/lemon, and oranges. Oranges were grown on approximately 53,000 household agricultural holdings in Cambodia and the area planted of oranges was estimated at 8,000 hectares with a yield of 3,810 kilograms per hectare.

The category of cultivated fruit contains many of Cambodia's most-grown produce including mango, banana, jackfruit, papaya, guava, custard apple, milk fruit, durian, longan, and others.

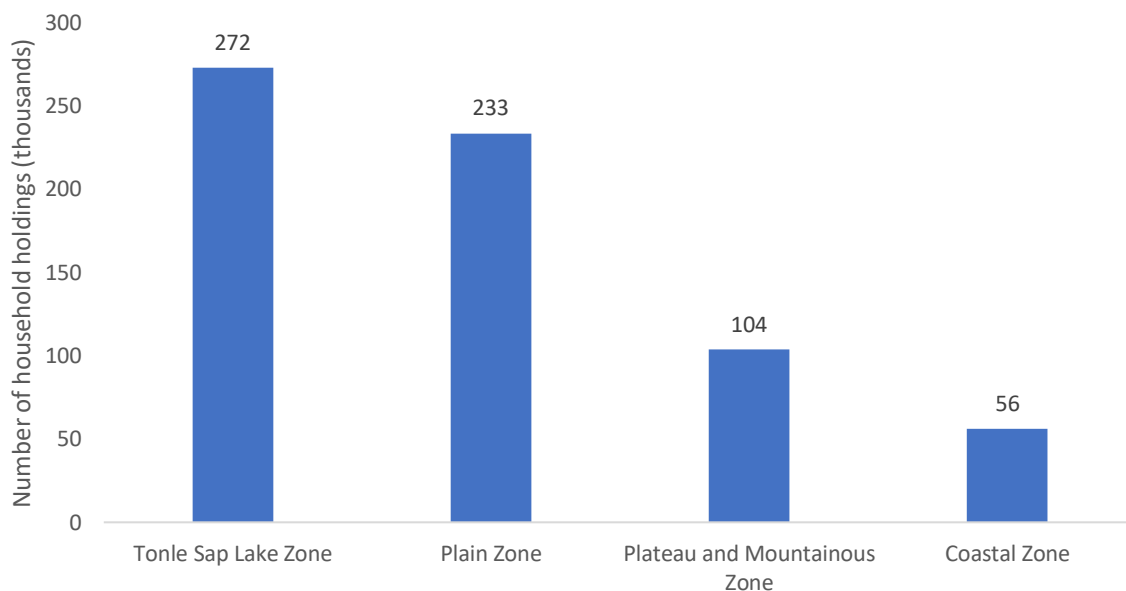
Figure 2.10 Cultivated fruits, household holdings reporting, Cambodia 2021



Source: CAS 2021

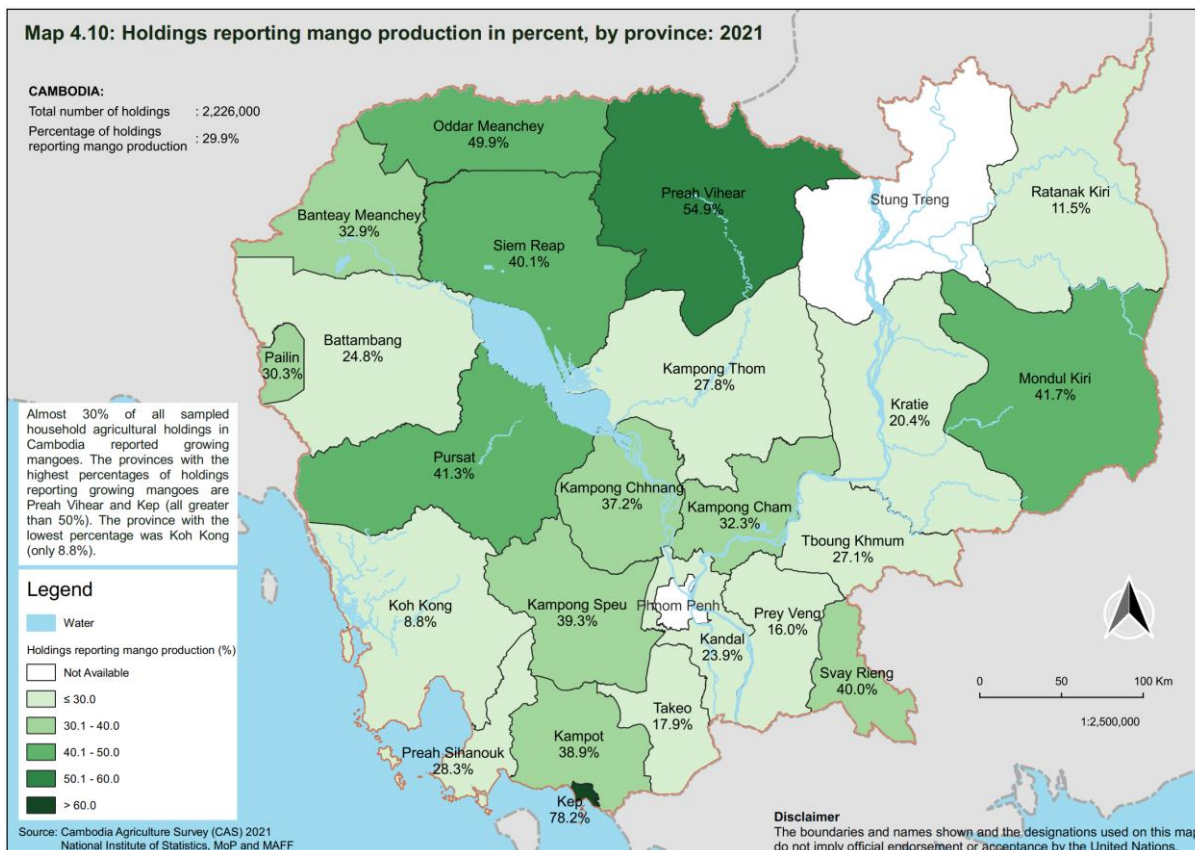
Mango was grown on approximately 665,000 household agricultural holdings in Cambodia. The area planted was estimated at 129,000 hectares with 93,000 hectares harvested, the largest of any of Cambodia's fruits. Mango was harvested with an estimated yield of 7,710 kilograms per hectare.

Figure 2.11 Mango, household holdings reporting, by zone, 2021



Source: CAS 2021

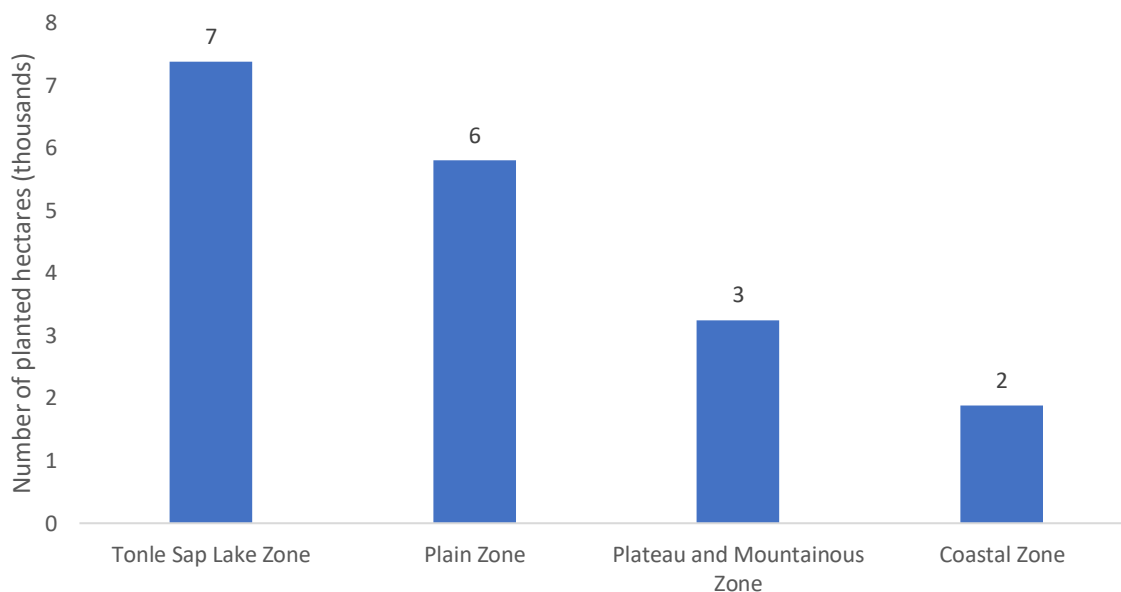
# Cambodia Agriculture Survey 2021: Crop Production



Source: Cambodia Agriculture Survey 2021 (CAS 2021) Selection of Thematic Maps; NIS-MOP, MAFF 2023.

Bananas were grown on approximately 658,000 agricultural household holdings and were planted across 18,000 hectares in Cambodia, with 10,000 hectares harvested. The quantity produced from the harvested hectares was estimated at 79,000 tonnes with an average yield of 12,440 kilograms per hectare. The Tonle Sap Lake zone reported the largest area of bananas, with 7,000 hectares planted.

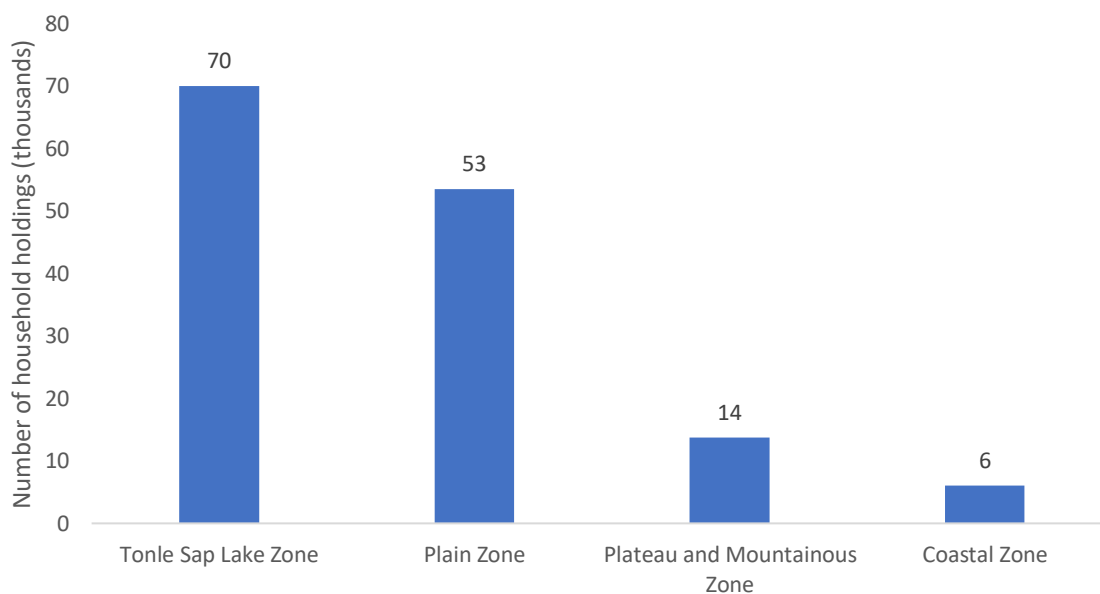
Figure 2.12 Banana planted hectares, by zone, 2021



Source: CAS 2021

Jackfruit was grown on approximately 143,000 holdings in Cambodia. The area planted was estimated at 2,500 hectares with 1,500 hectares harvested. The average yield was estimated at 5,070 kilograms per hectare. Jackfruit was grown most frequently in the Tonle Sap Lake zone with 70,000 households reporting its production.

Figure 2.13 Jackfruit, household holdings reporting, by zone, 2021



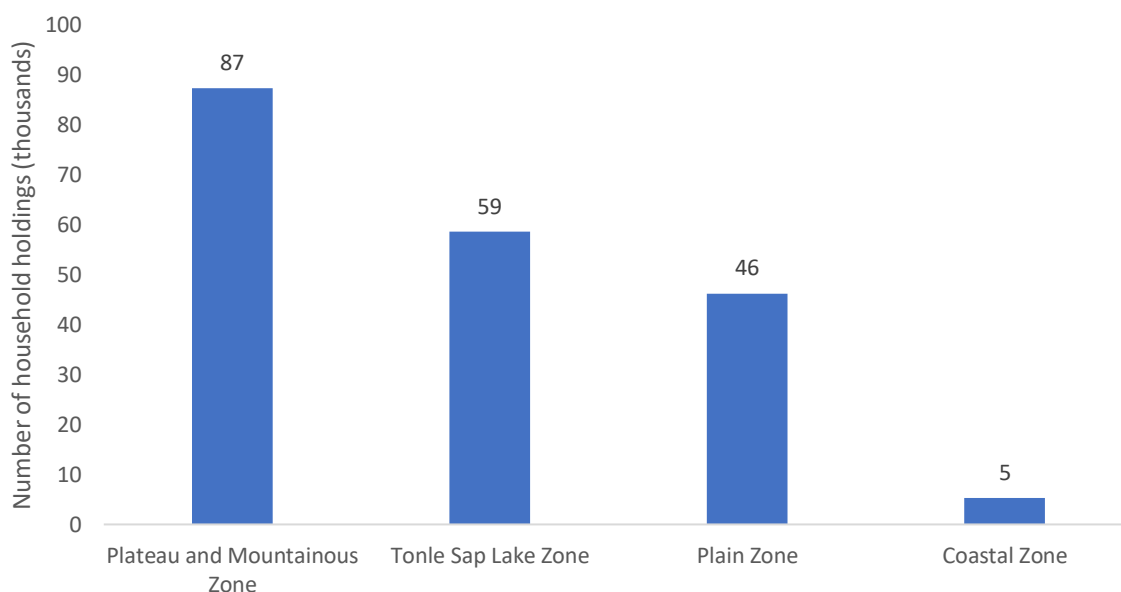
Source: CAS 2021



## Cashew

In the edible nuts category, the CAS collected data on betel nuts and cashews, with cashews being the more popular of the two. Cashews were grown on approximately 197,000 agricultural household holdings in Cambodia. The area planted of cashews was estimated at 451,000 hectares in Cambodia, with 366,000 hectares harvested and the quantity harvested estimated at 348,000 tonnes. The average yield per hectare was 1,050 kilograms. The Plateau and Mountainous zone reported the largest area of cashews grown, with 227,000 hectares of cashews planted.

Figure 2.14 Cashew, household holdings reporting, by zone, 2021

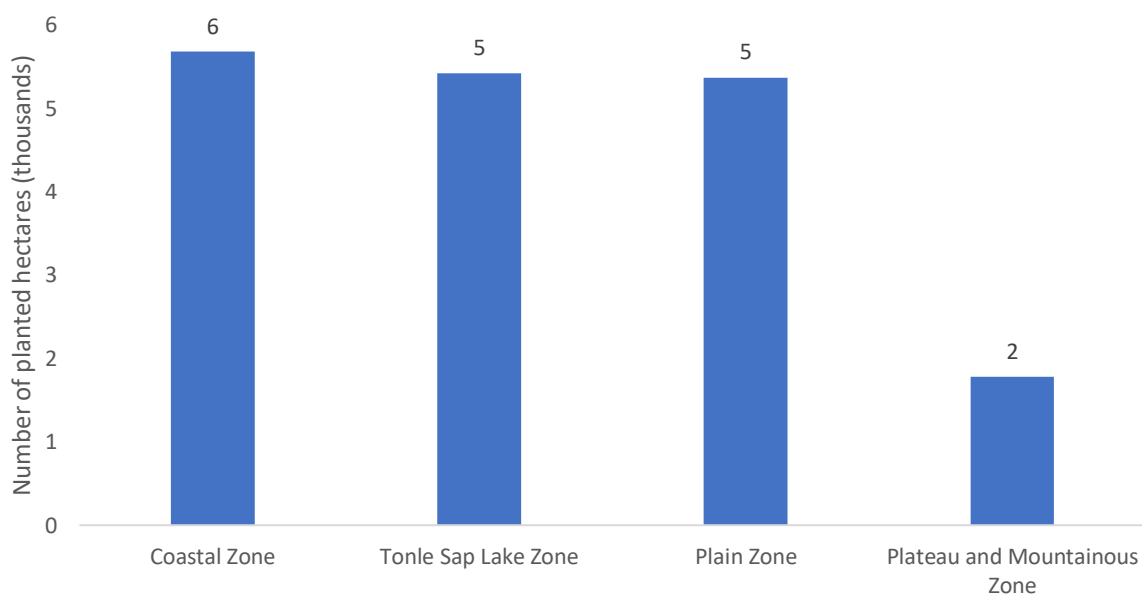


Source: CAS 2021

## Oil Crops

Oil crops covered by the CAS included coconut and palm. Coconut was the more popular crop of the two, with 488,000 household agricultural holdings reportedly growing coconut. Coconut planted area was estimated at 18,000 hectares with an area harvested of 9,000 hectares. The quantity harvested was estimated at 74,000 tonnes with an average yield of 9,000 kilograms per hectare. The Coastal Zone grew the largest area of coconuts with approximately 6,000 hectares planted.

Figure 2.15 Coconut planted hectares, by zone, 2021



Source: CAS 2021

## Permanent Spice and Aromatic Crops

Black pepper was grown by approximately 17,000 agricultural household holdings in Cambodia. Planted hectares were estimated at 10,000 with harvested hectares estimated at 9,000. The total quantity harvested was estimated at 21,000 tonnes with an average yield of 2,830 kilograms per hectare. The Plain Zone reported most of the planted black pepper with 7,320 hectares planted coming from this zone.

## Rubber

Rubber was grown on approximately 49,000 agricultural household holdings in Cambodia. The total rubber area planted was estimated at 163,000 hectares with harvested area estimated at 140,000 hectares. The total quantity of rubber harvested was estimated at 386,000 tonnes. The Plain zone was the region with the largest area of rubber grown, with 119,000 hectares. It is worth noting again that the data for this report uses only the household agricultural holdings, whilst most rubber production in Cambodia is completed by private sector establishments, not included within this report.

## Non-Food Crops

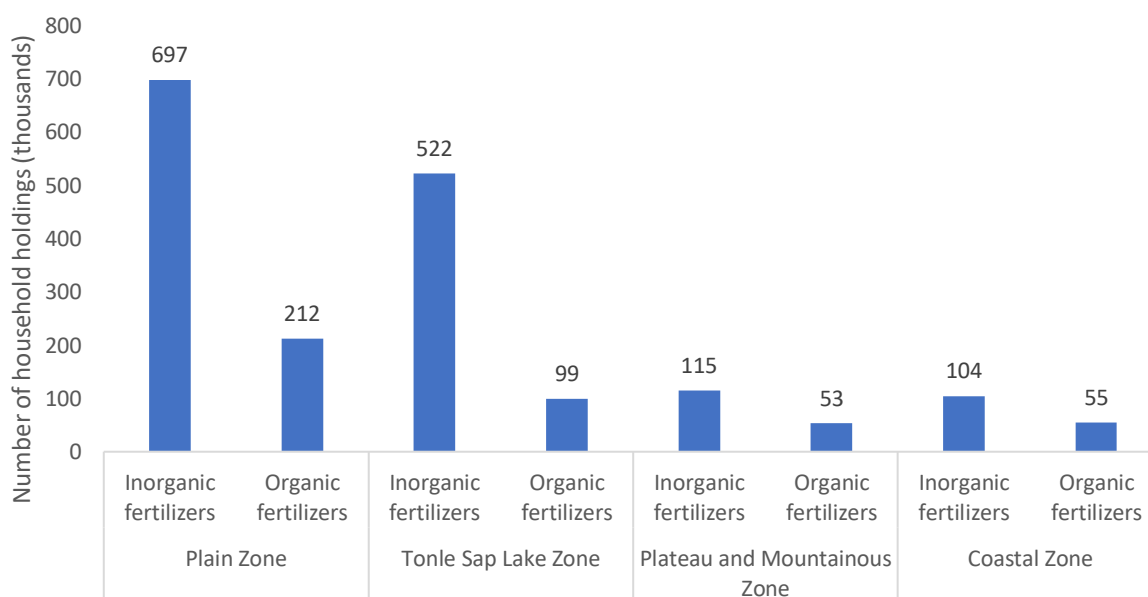
Non-food crops contain flowers, plants and trees. Bamboo, used for many purposes including house building, furniture and cooking was the leading non-food crop with approximately 9,500 agricultural household holdings reportedly growing bamboo. The Tonle Sap Lake zone was the region that reported the largest number of holdings growing bamboo, at 5,000 holdings.

## Use of Chemical and Organic Fertilizers, Pesticides and Irrigation

### Use of fertilizer and pesticide

Fertilizer is commonly used in Cambodia. In particular, inorganic fertilizer is used much more frequently than organic fertilizer. More than 1.4 million households reported using inorganic fertilizers in 2021 (roughly 65% of all household agricultural holdings), compared with only 419,000 holdings which reported using any organic fertilizers (roughly 19% of all household agricultural holdings). Among holdings which used them, inorganic fertilisers were reportedly used with an average amount of 370 kilograms per holding within the reference year. Inorganic fertilisers were used the most in the Plain zone where 697,000 agricultural holdings were recorded using them, this was approximately 73% of all household agricultural holdings. Organic fertilizers were used most frequently in the Coastal zone in which 55,000 holdings used them, approximately 35% of all household agricultural holdings in this zone. Among holdings using them, organic fertilisers were applied in much greater amounts than inorganic fertilisers, with an average of 880 kilograms per holding within the 2021 reference period.

Figure 2.16 Use of fertilizers by household agricultural holdings, by zone, 2021

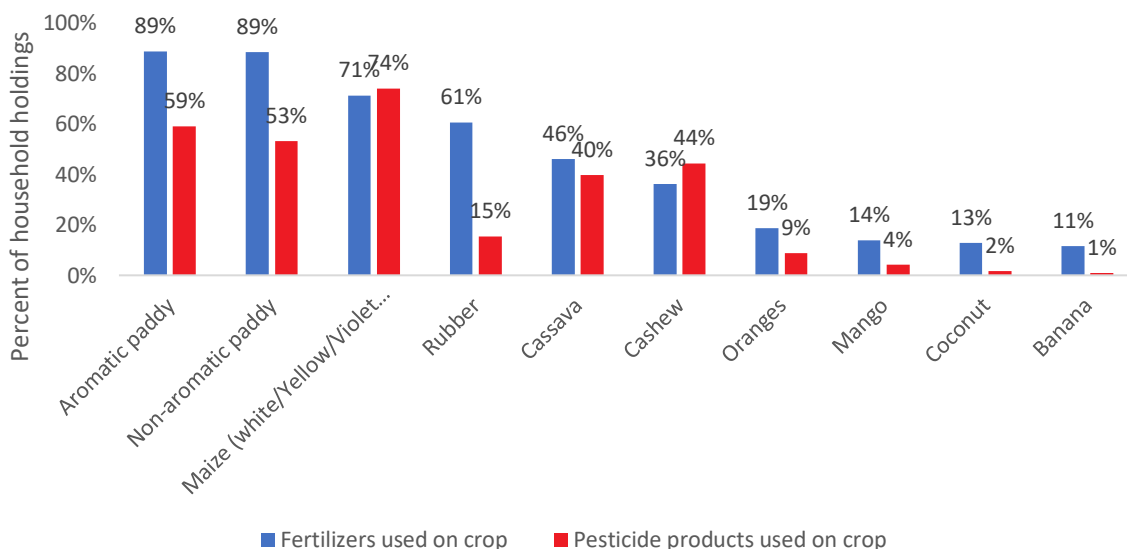


Source: CAS 2021

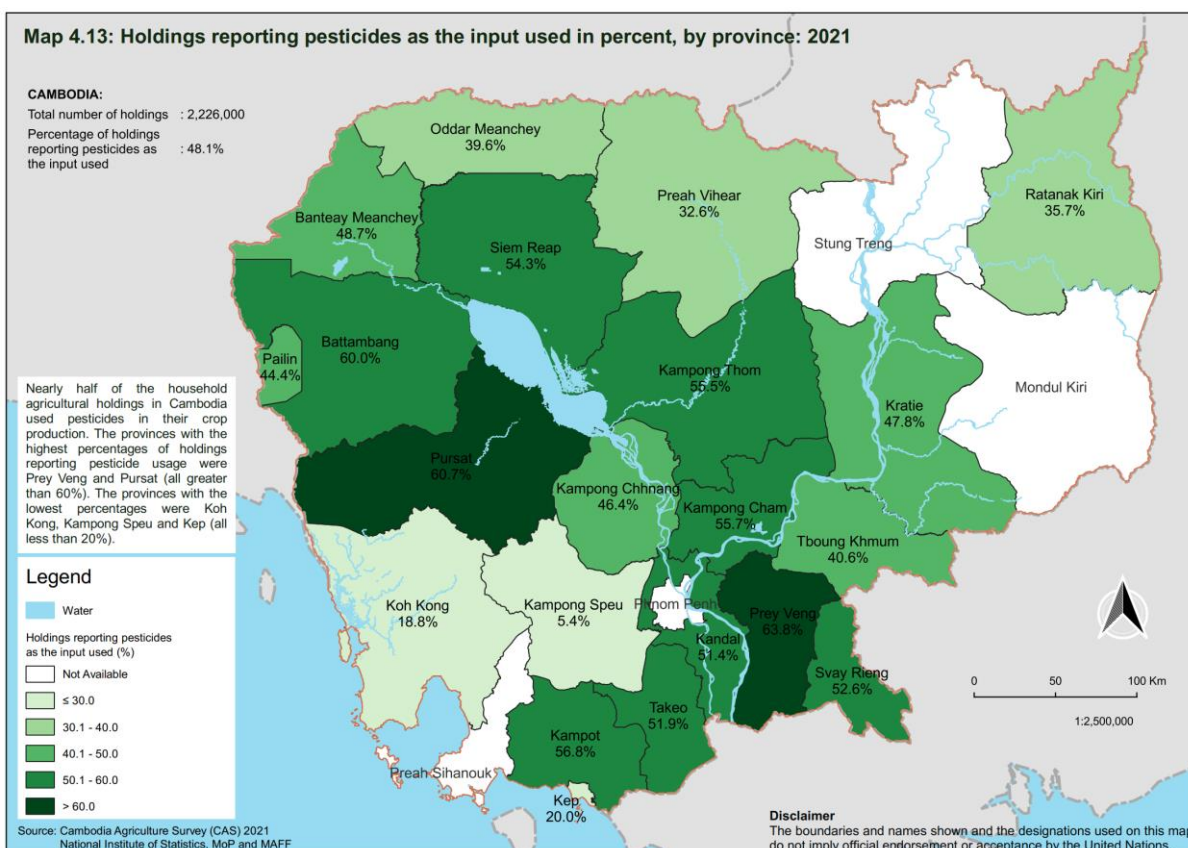
The use of fertilizers in Cambodia varies by crop grown as can be seen in the figure below. Respondents were asked by crop, if the crop was treated with fertilizer and pesticide, in this case, fertilizer use includes both organic and inorganic fertilizers. There was a correlation between the number of holdings using fertilizer on a crop and pesticides being used on it also, although in most cases pesticide was used in fewer holdings than would use fertilizer. 89% of households growing aromatic rice used fertilizer on the crop, and a similar percent used fertilizer on non-aromatic varieties as well. Maize was a crop which saw high use of both fertilizer and pesticides at 71% and 74% respectively. Overall, permanent crops; for example,

mango, coconut and banana, saw much lower usage of both fertilizers and pesticides than temporary crops.

Figure 2.17 Percent of household agricultural holdings using fertilizer and pesticide on specific crops, Cambodia, 2021



Source: CAS 2021

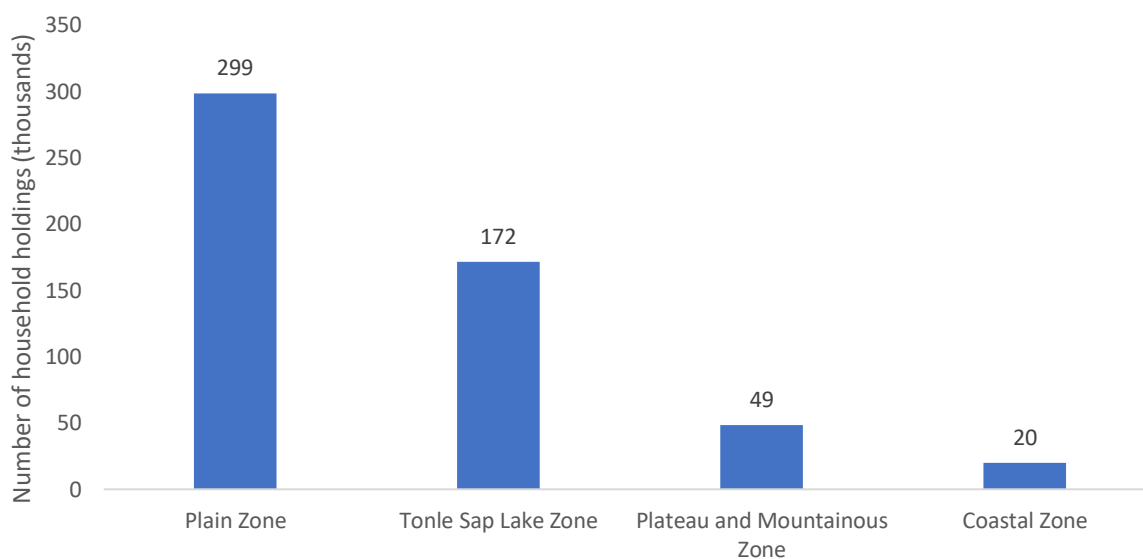


Source: Cambodia Agriculture Survey 2021 (CAS 2021) Selection of Thematic Maps; NIS-MOP, MAFF 2023.

## Irrigation use

In Cambodia, an estimated 539,000 household agricultural holdings reported the use of any irrigation system on their holding (around 24% of all household agricultural holdings). This was highest in the Plain zone where 299,000 holdings used irrigation (35%) and lowest in the Coastal zone where only 20,000 holdings used irrigation (15%).

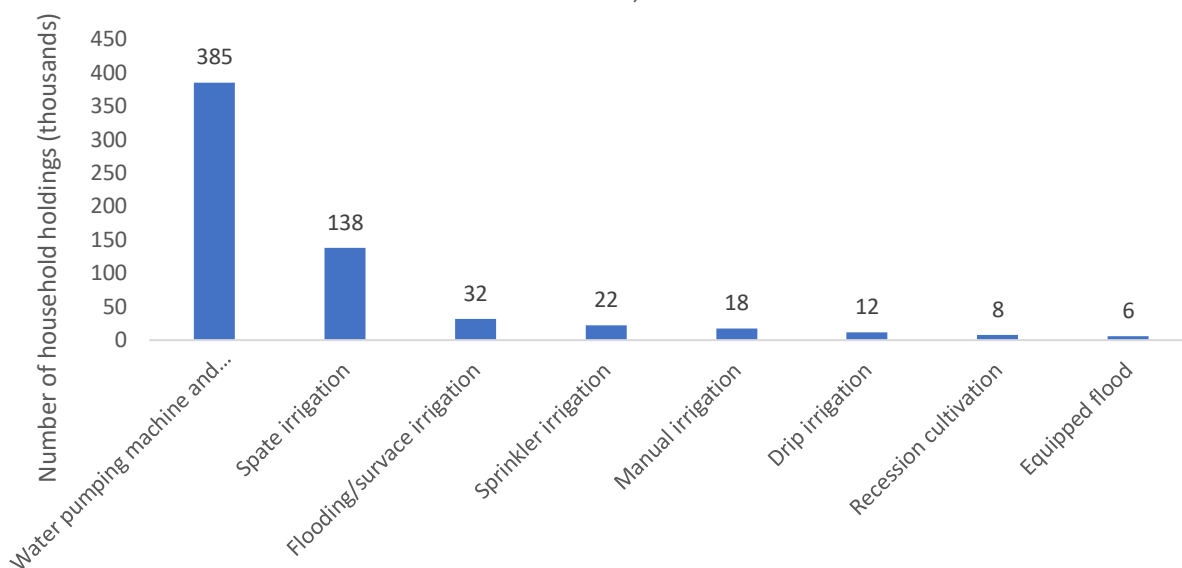
Figure 2.18 Number of household agricultural holdings using irrigation, by zone, 2021



Source: CAS 2021

Irrigation used by Cambodian household agricultural holdings was a water pumping machine and manual spraying, used by 385,000 holdings or around 71% of the holdings using irrigation. Other methods were used by many fewer households, for example, spate irrigation which was used by the second most households with 138,000 holdings using it.

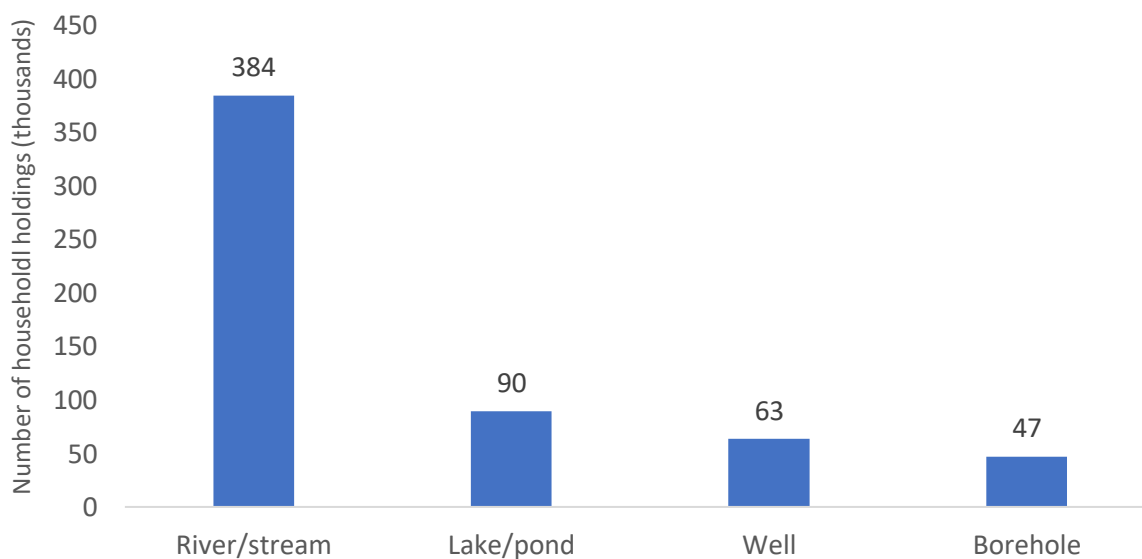
Figure 2.19 Types of irrigation used, number of household agricultural holdings, Cambodia, 2021



Source: CAS 2021

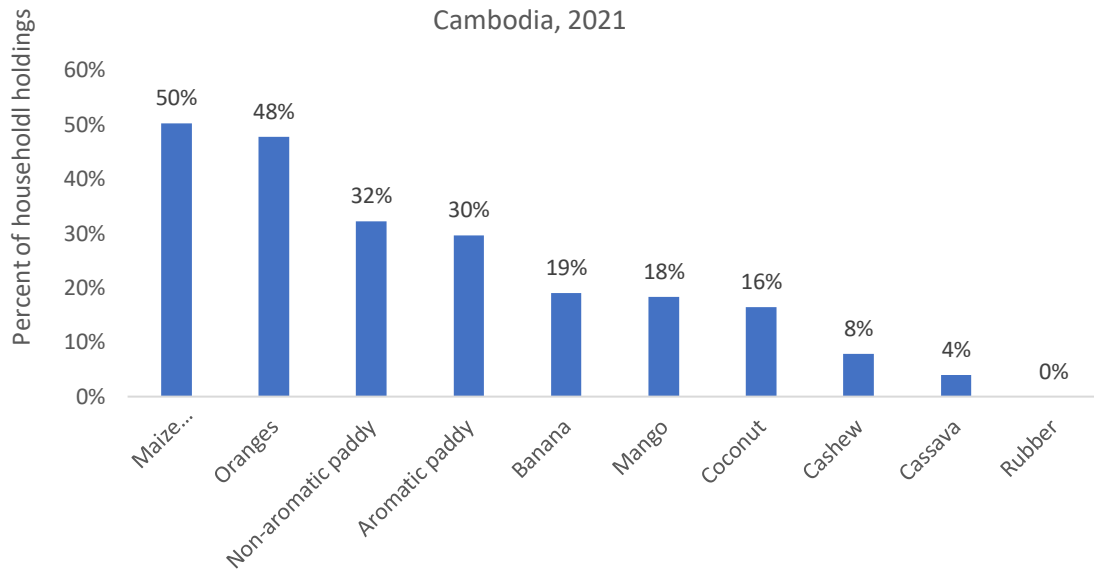
An estimated 384,000 household agricultural holdings get the water for their irrigation from a river/stream. This accounted for around 71% of households which use irrigation. The use of irrigation varied substantially across different crops with some temporary crops, e.g. maize, having a substantial number of holdings irrigating their crops (49%), whilst other temporary crops, e.g. cassava, having very few holdings irrigating them (3%). Similarly, permanent crops had a diverse range of results, for example, oranges were more often irrigated (64%), while cashew nuts were not (9%).

Figure 2.20 Source of water for irrigation, number of household agricultural holdings, Cambodia, 2021



Source: CAS 2021

Figure 2.21 Percent of household agricultural holdings using Irrigation, Cambodia, 2021



Source: CAS 2021

## Report 2 Annexes

Annex 1: Tree or plant crops, conversion factors from number of trees to hectares

Tree/plant type	Conversion factor in trees (or plants) per hectare
Oranges	400
Tangerines	400
Grapefruit and pomelo	400
Lime/lemon	400
Kafir lime	400
Other citrus fruits	400
Banana	1667
Custard apple	400
Soursop	400
Guava	400
Longan	278
Mango	270
Papaya	6000
Pineapple	14000
Wood apple	400
Jackfruit	270
Jampadak Breadfruit	270
Pomegranate	600
Sapodilla/Chico	278
Rambutan	156
Mangosteen	100
Rambeh	270
Manila tamarind	70
Durian	270
Milk fruit	270
Lotus fruit	25000
Rose apple	278
Marian plum	270
Hog plum	278
Jambolen plum	270
Jujube	278
Lychee or Litchi	156
Star fruit	300
Dragon Fruit	2500
Bilimbi Fruit	300
Passion Fruit	156
Sour apple/Cotton fruit/ Sandorica	100





# Cambodia Agriculture Survey 2021: Crop Production

Small bell	400
Date	200
Noni/Morinda	300
Other cultivated fruit	280
Cashew	278
Betel nuts	2500
Lotus nuts	25000
Other beverage crops	1000
Coconut	278
Oil Palm	278
Palm	1000
Black pepper	2500
Krasang	250
Tamarind	70
Other spices and aromatic crops	1000
Rubber	555
Other rubber and tanning crops	500
Jasmine	5000
Tuberose	3000
Frangipani	200
Anthurium	20000
Other flowers	1500
Heliconia	15000
Ginger plant	10000
Lucky bamboo plant	15000
Bamboo	10000
Eucalyptus trees	7000
Sandalwood	1600

Source: CAS 2021