# Pakistan's Rising Palm & Soybean Imports

## Understanding the Drivers, and Challenges to Domestic Oilseed Production

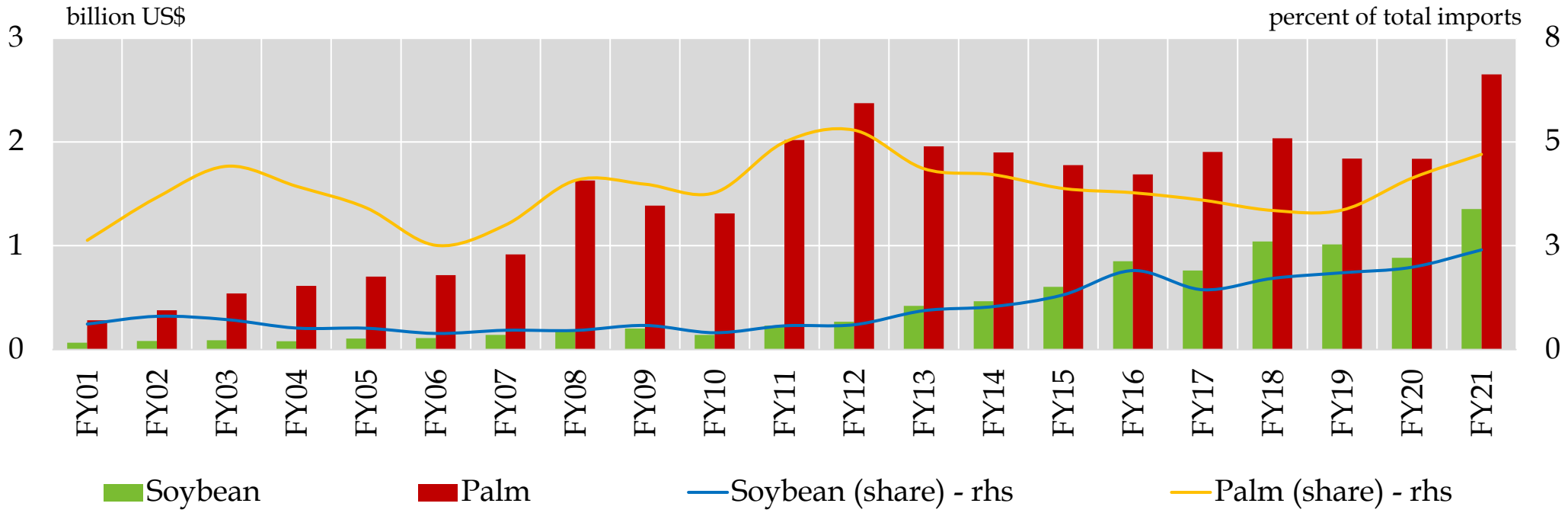
Sohaib Jamali

# Agenda

- What got us interested?
- Understanding the drivers
- Recent developments on the supply side
- The story of palm in Pakistan
- The story of soybean
- Final Remarks

# What got us interested?

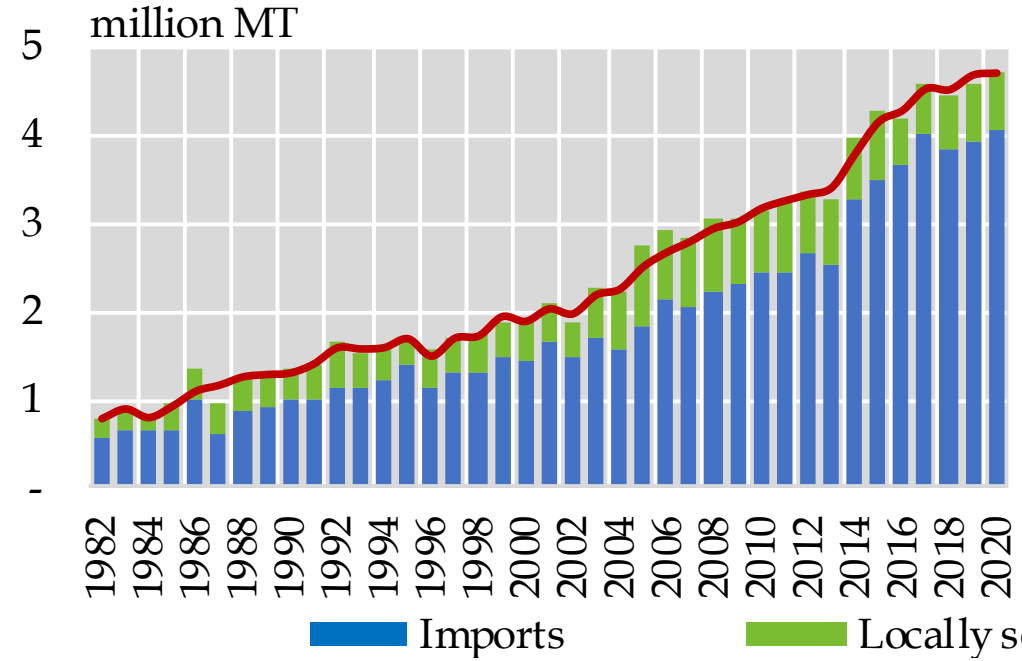
## Trend in Pakistan's Palm and Soybean Imports



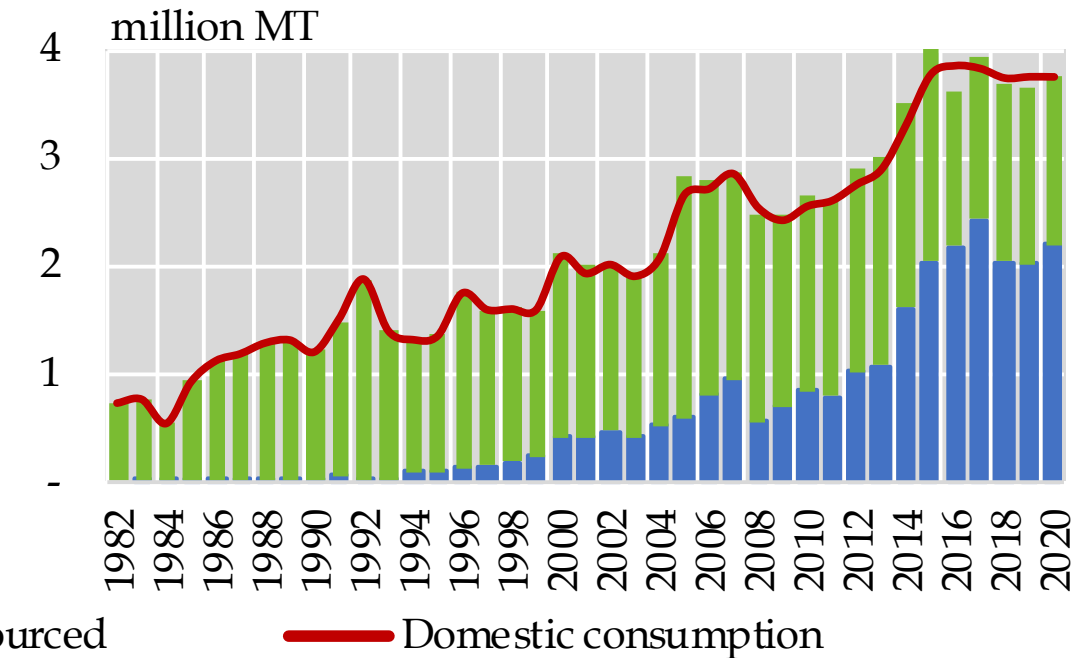

Source: Pakistan Bureau of Statistics

# What got us interested?

## Historical Trend of Demand and Supply of Edible Oil in Pakistan




## Historical Trend of Demand and Supply of Oilseed Meal in Pakistan

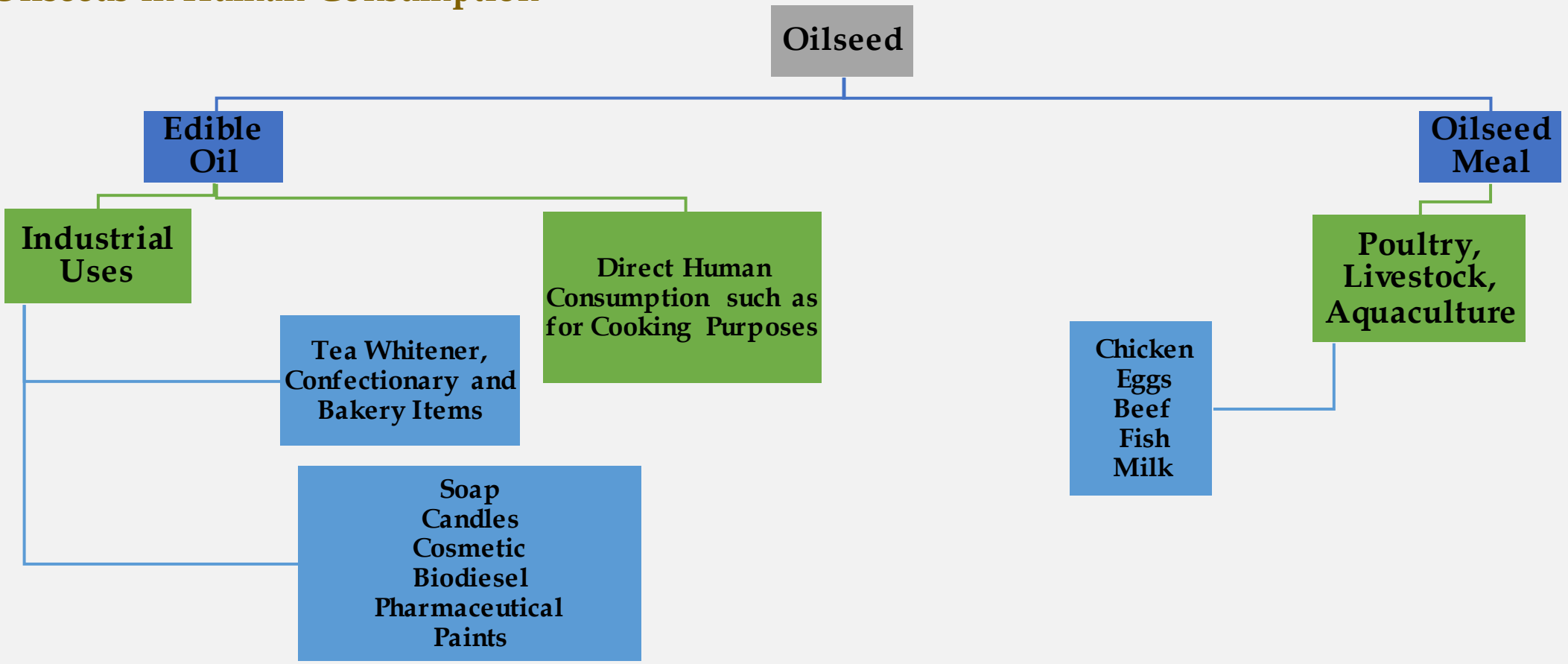



Imports | Locally sourced | Domestic consumption

Imports in this graph refers to imported oil & meals as well as oil & meals locally produced by crushing imported oilseeds. Locally sourced only includes oil & meals locally produced by crushing oilseeds grown in Pakistan.
Note: The figure does not account for variation due to beginning and ending stocks.
Source: Foreign Agriculture Service, United States Department of Agriculture

# Understanding the drivers – Demand Side

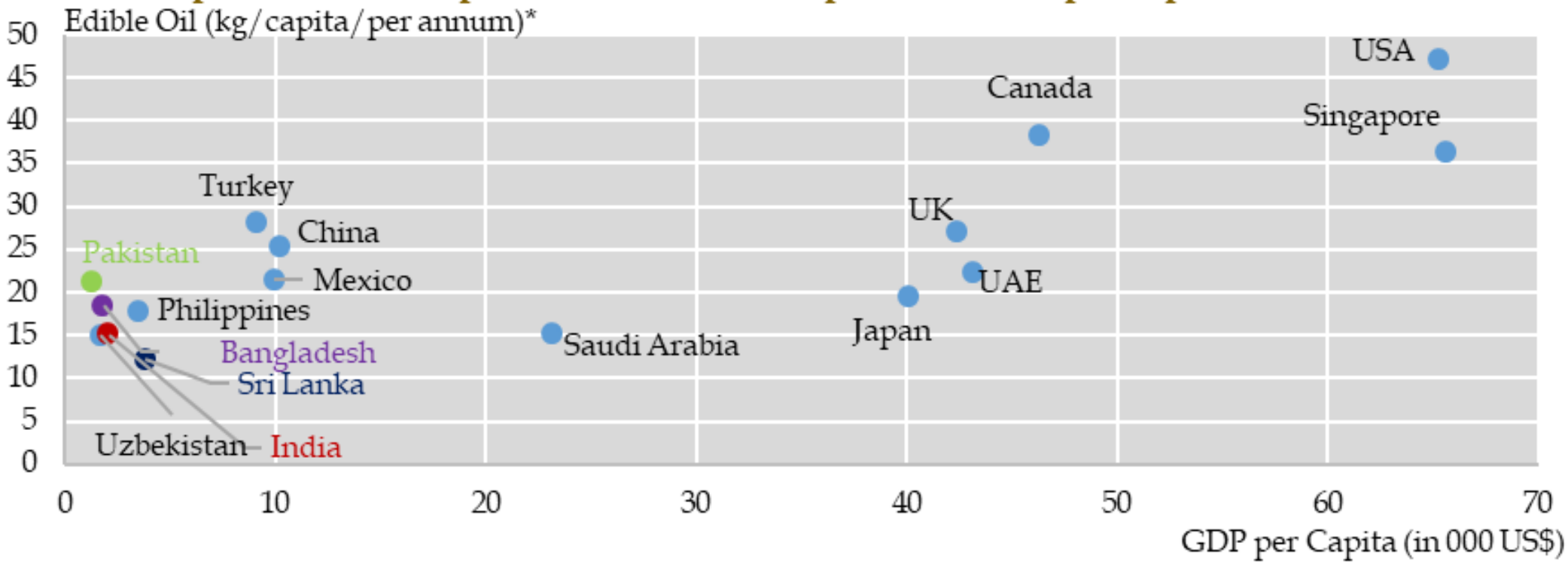
## Oilseeds in Human Consumption




Source: R.J. Mailer (2006). "Oilseeds: Overview." In C. Wrigley, H. Corke, K. Seetharaman, and J. Faubion (eds.), "Encyclopedia of Food Grains (Second Edition)" pp. 221-227.

# Understanding the drivers – Demand Side

## Relationship between Per Capita Edible Oil Consumption and GDP per Capita

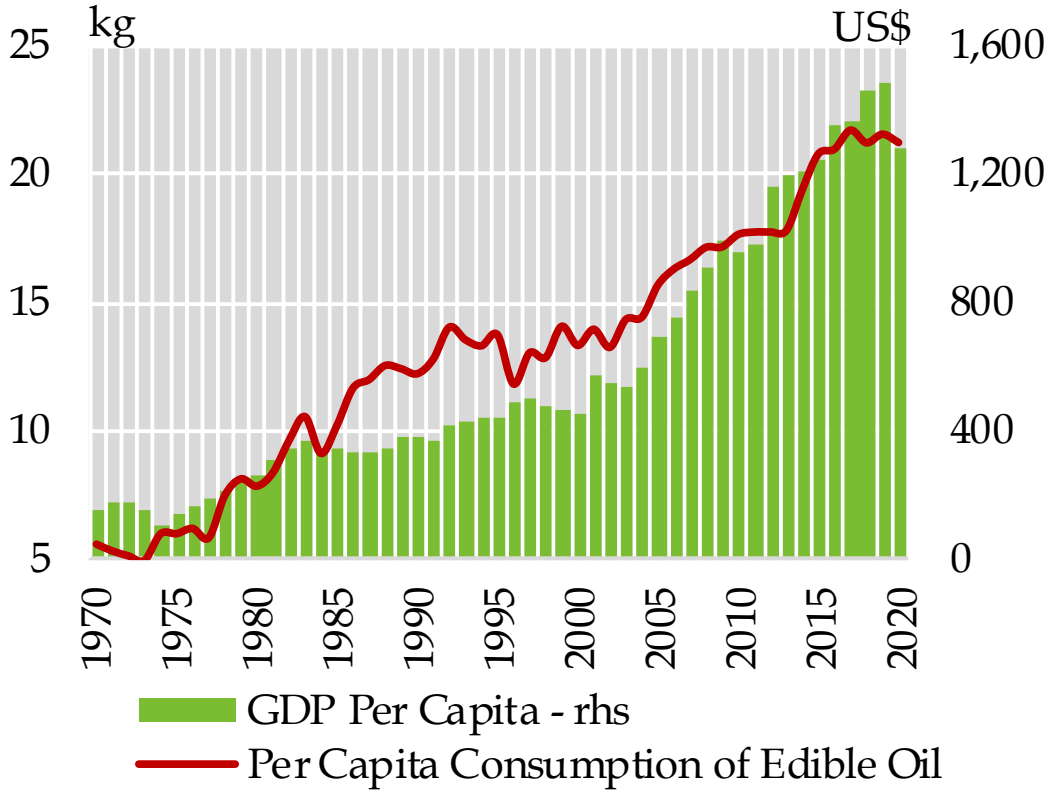



*per capita edible oil consumption is calculated using consumption data from USDA and population data from WB

Source: Foreign Agriculture Service, United States Department of Agriculture and World Bank

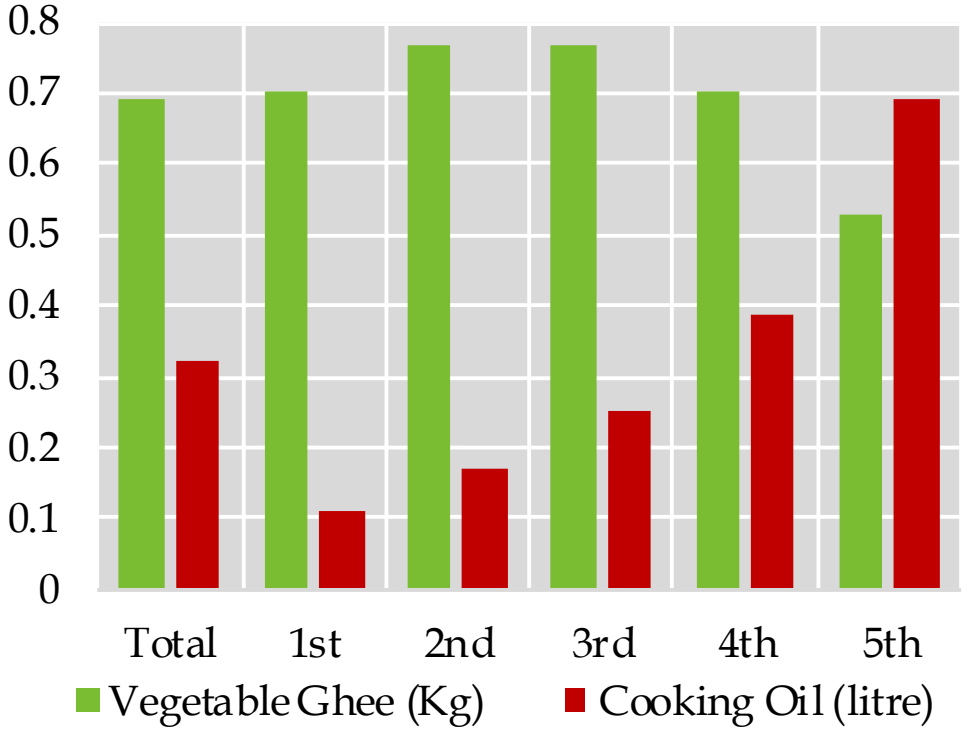
# Understanding the drivers – Demand Side

## Per Capita Consumption of Edible Oil in Pakistan




Source:Foreign Agriculture Service, USDA and World Bank

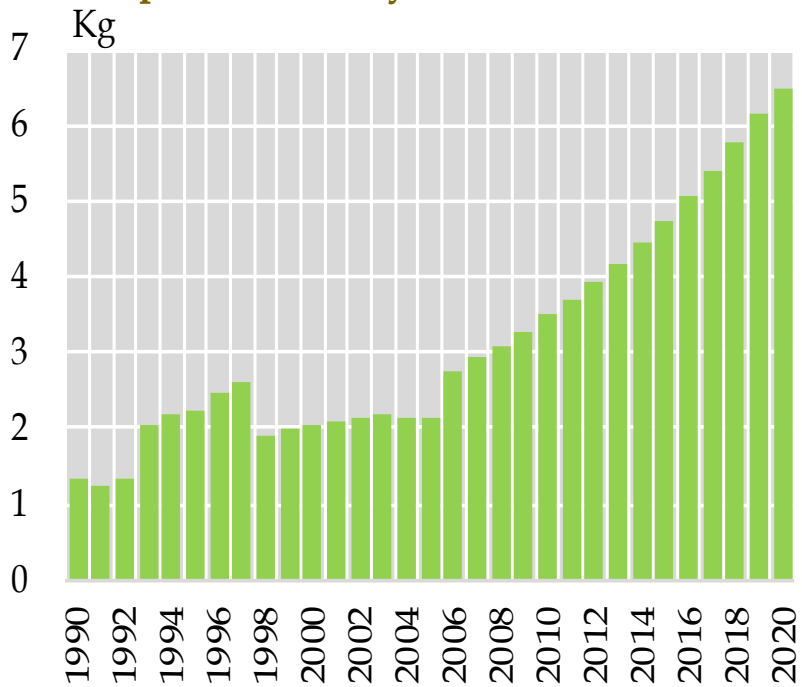
## Pakistan's Monthly Per Capita Consumption by Quintiles




Source: HIES 2018-2019 , Pakistan Bureau of Statistics

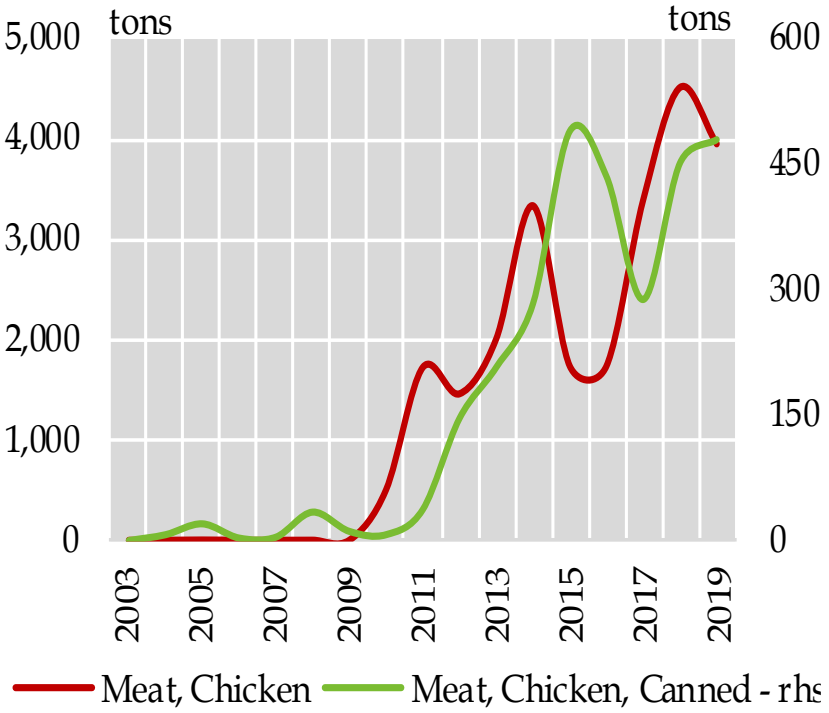
# Understanding the drivers – Demand Side

## Pakistan's Annual Per Capita Consumption of Poultry Meat



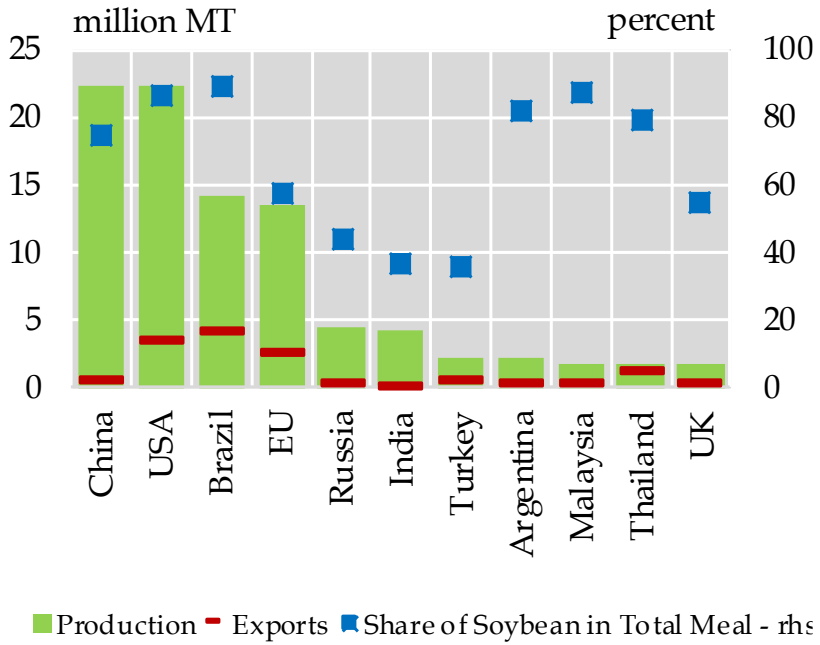

Source: OECD-FAO Agriculture Outlook 2021

## Pakistan's Chicken Exports




Source:Food and Agriculture Organization, UN

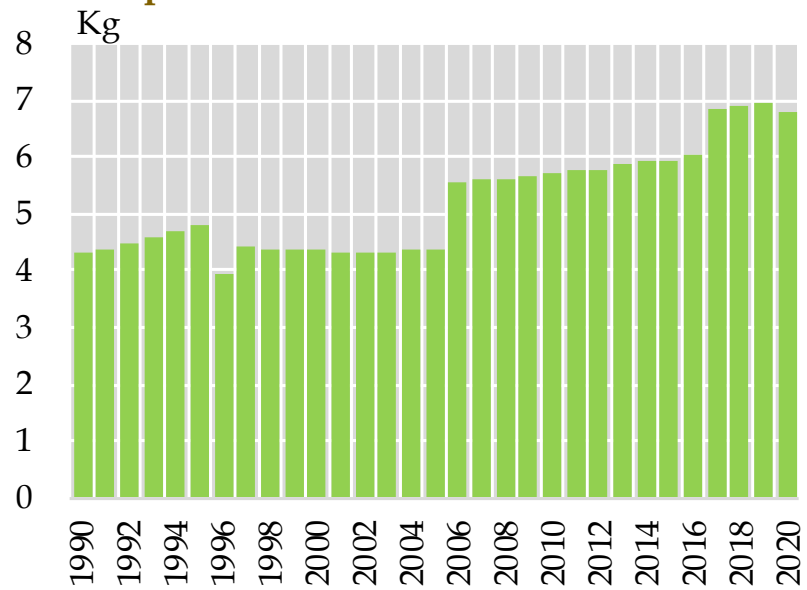
## Use of Soybean Meal in Top Poultry Exporters and Producers




Source: Agri Outlook (2021), OECD-FAO

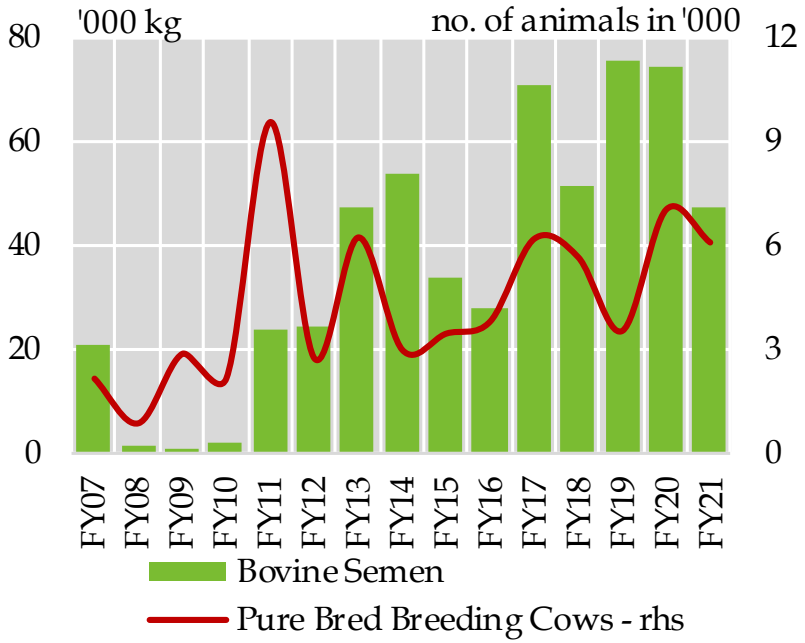
# Understanding the drivers – Demand Side

**Pakistan's Annual Per Capita Beef Consumption**



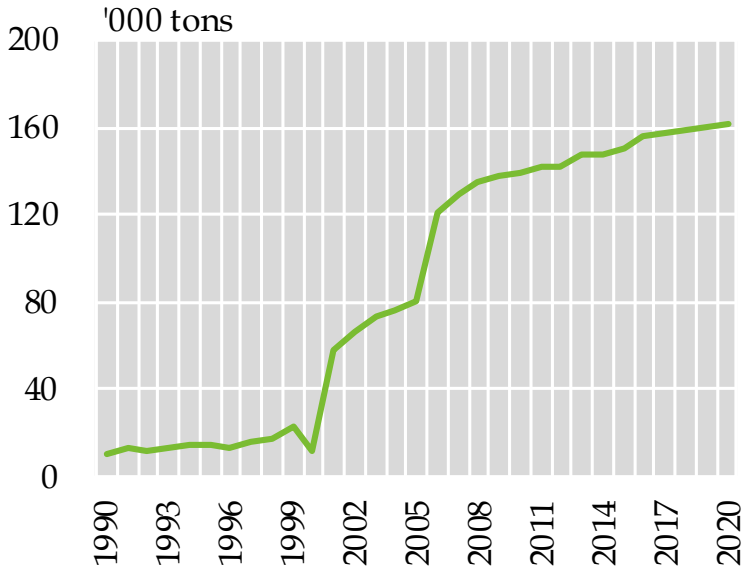

Source: OECD-FAO Agriculture Outlook 2021

**Pakistan's Livestock Imports**




Source: Pakistan Bureau of Statistics

**Production of Fish from Aquaculture in Pakistan**




Source: Agricultural Outlook 2021, OECD-

# Understanding the drivers – Demand Side

## Recent Laws and Regulations on Livestock

**Sindh**

-Sindh Livestock Breeding Act. 2016

-To introduce Livestock Action Plan under Sndh Agriculture Policy (2018-30)

**Punjab**

-Punjab Breeding Act, 2014

-The Punjab Animals Feed Stuff and Compound Feed Act 2016

-Punjab Livestock Policy (to be approved by cabinet)

-Minimum Pasteurization Law under Punjab Pure Food Regulations, 2018 to come in force by July 2022

**Balochistan**

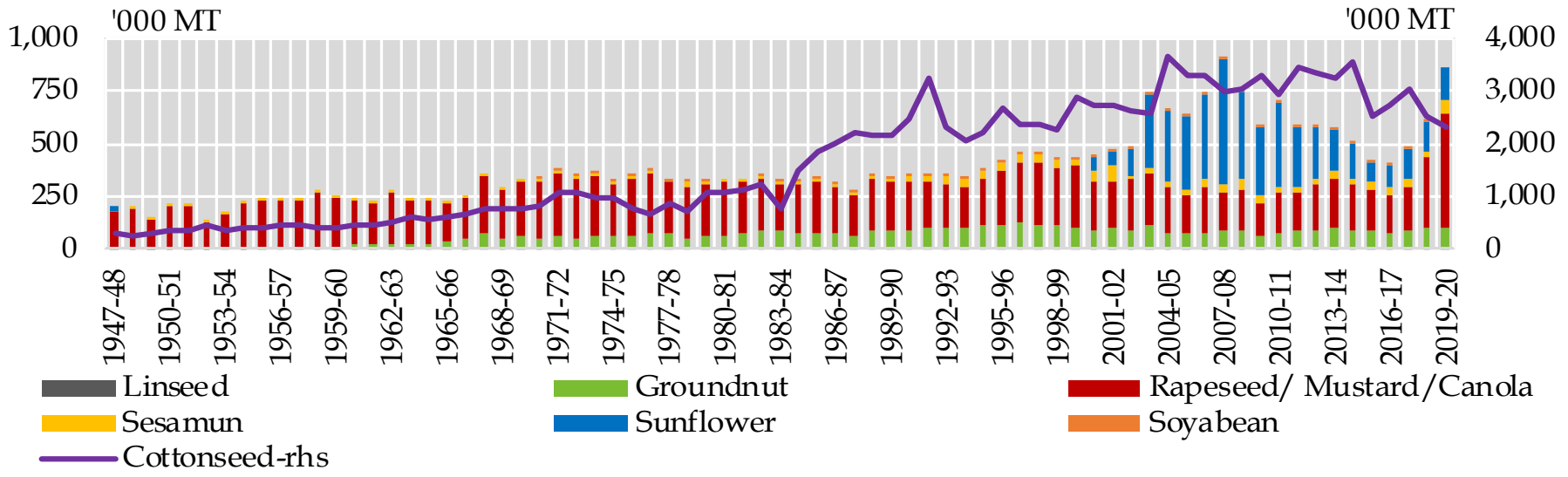
-Balochistan Livestock Policy, 2019.

**KPK**

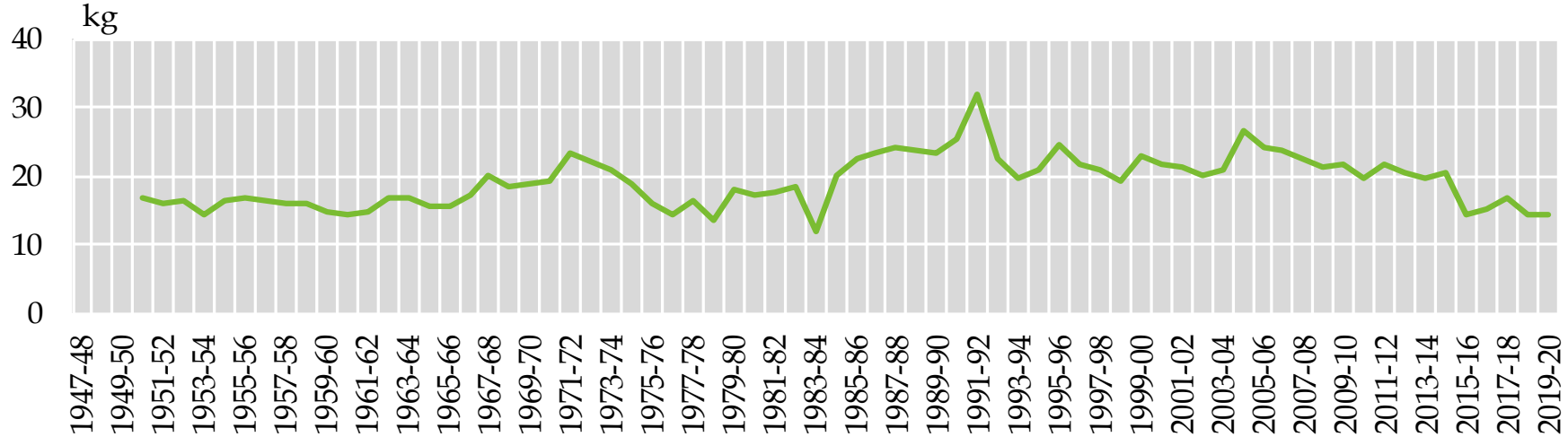
-KPK Livestock Policy, 2018

# Understanding the drivers – Supply Side

## Historical Trend in Production of Different Oilseeds in Pakistan




## Historical Trend in Per Capita Availability of Domestic Oilseeds

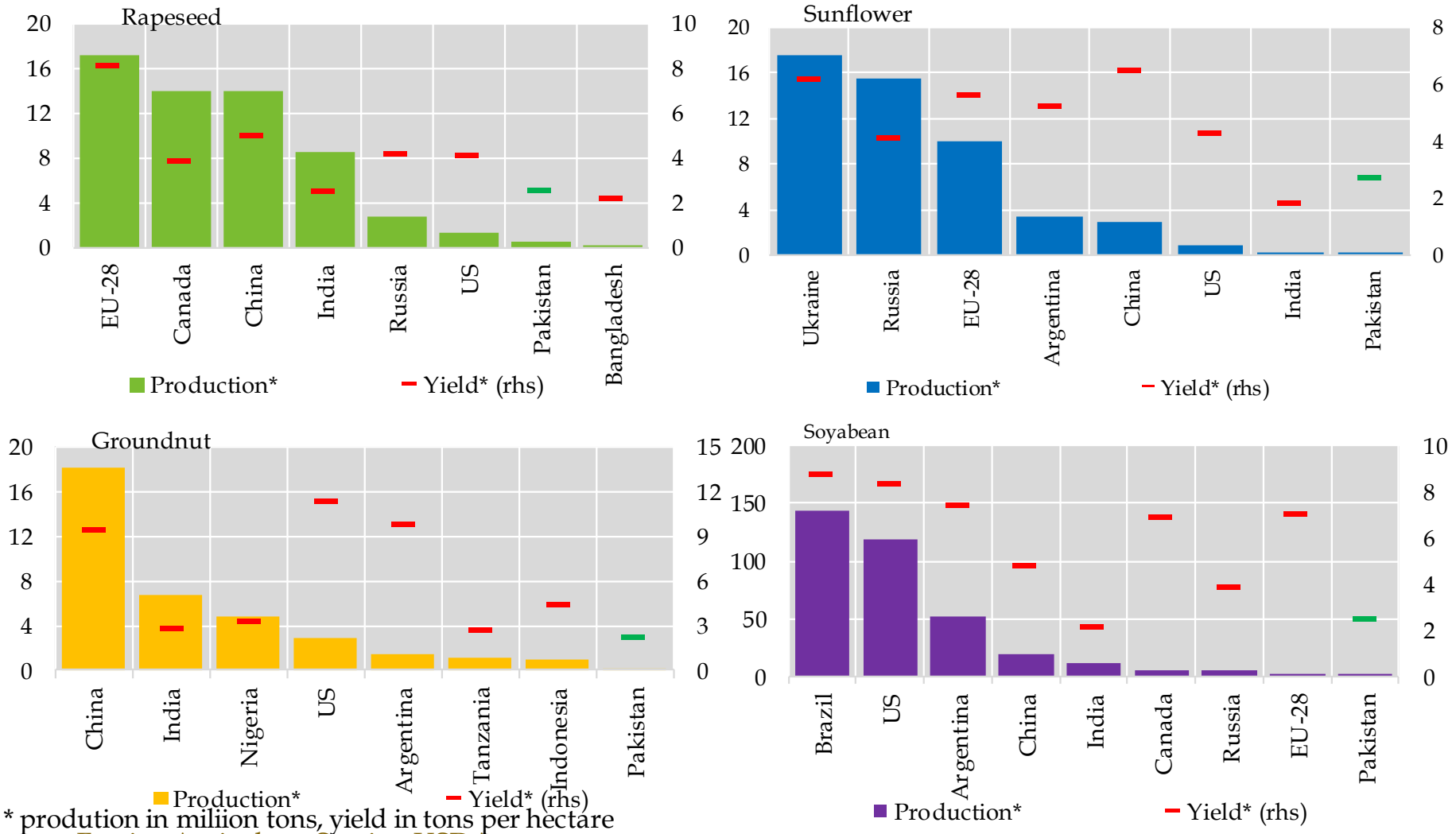



Source: Agriculture Statistics of Pakistan, MNFS&R

# Understanding the drivers – Supply Side

# Understanding the drivers – Supply Side

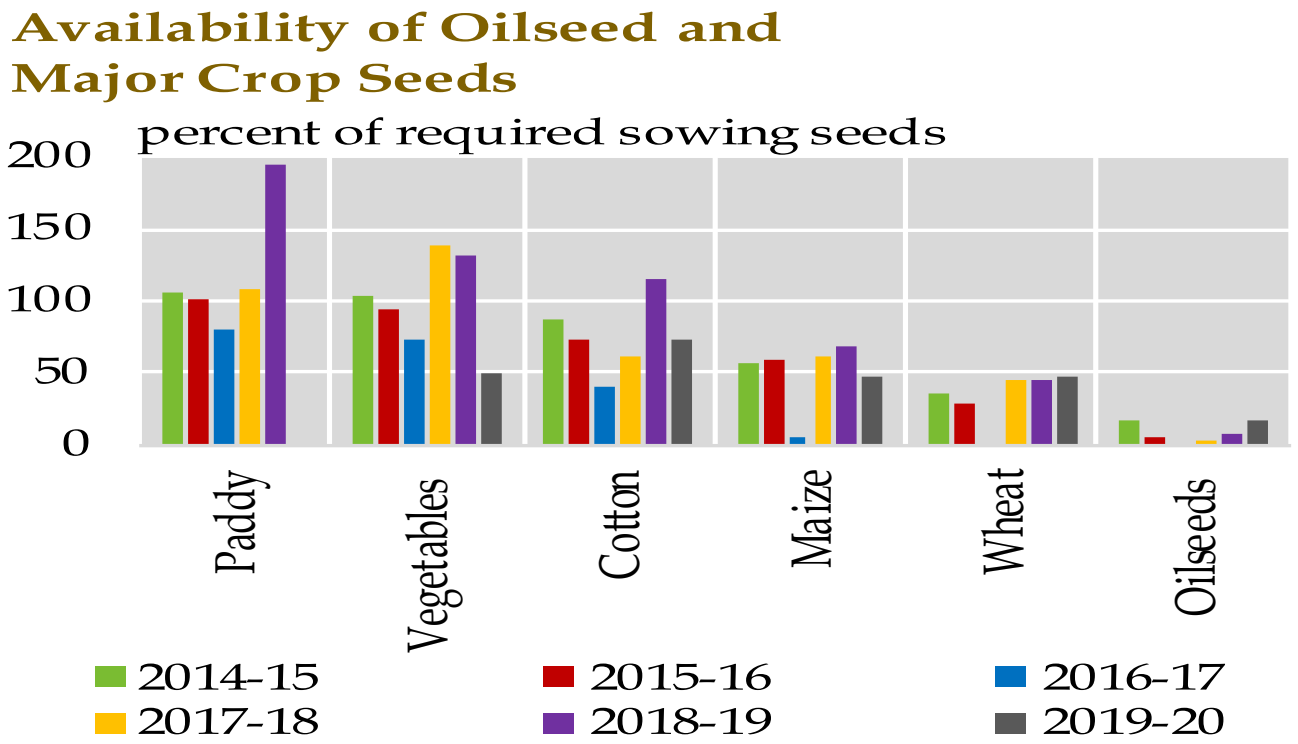
## Cross-Country Comparison of Production and Yield of Major Producers of Edible Oil Crops




* prodution in miliion tons, yield in tons per hectare

Source: Foreign Agriculture Service, USDA

# Understanding the drivers – Supply Side




Source: Federal Seed Certification & Registration Dept.

# Understanding the drivers – Supply Side

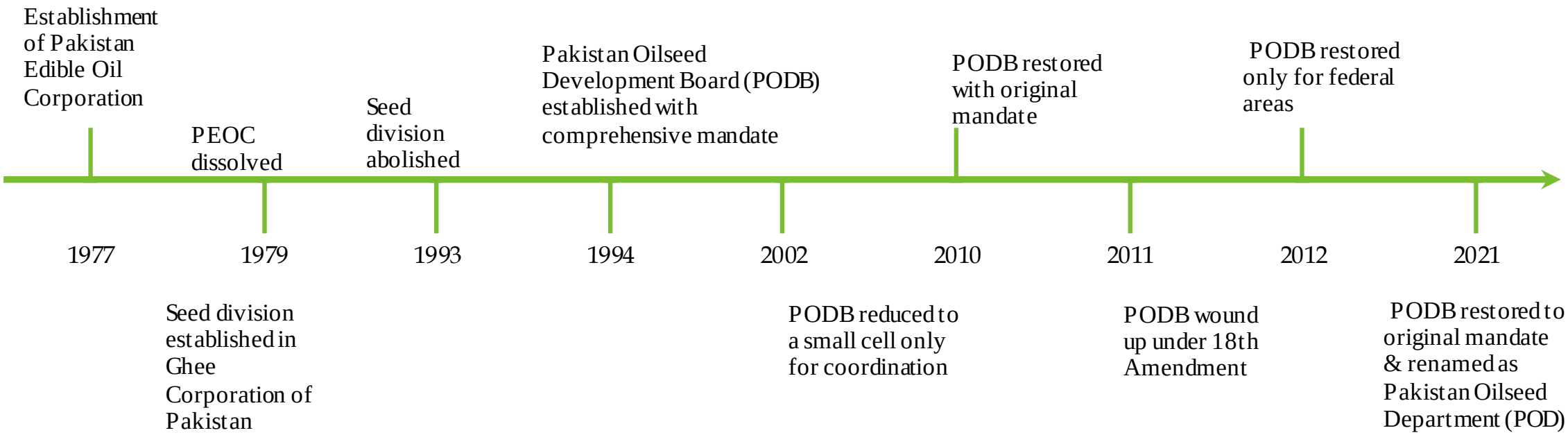
**Oilseeds in Pakistan's Five Year Plans**

| 5-year plans | Actions/Strategies |
|---|---|
| 1st: 1955-60 | Expanded program to develop suitable varieties of soybean in East & West Pakistan. Emphasis on high yielding varieties of ground nut, rapeseed, linseed & castor. |
| 2nd: 1960-65 | Recommends trials to investigate possibilities of growing soybean. |
| 3rd: 1965-70 | No mention of oil seeds. |
| 4th : 1970-75 | Notes that oilseeds can also be used to fortify existing food by creating food-grain flours. Proposes policies & programs for implementation of evolution, acclimatization, and introduction of high yielding varieties of both existing and new oilseed crops. Recommends support price for soybean. Targets 79% production increase in non-cotton oilseeds over plan period. |
| 5th : 1978-83 | Defines long-term objective: contain vegetable oil imports. Increase in cultivation area of oilseed crops and rigorous breeding programs improved variety of seeds for oilseed crops. Prioritized research work on sunflower, soybean, and safflower. First time support price announced for soybean & sunflower. Targets 60% production increase in non-cotton oilseeds over plan period. |
| 6th : 1983-88 | Notes difficulty in bringing reforms in oilseed crops. Highlights that soybean provides most promising potential for efficient growth of poultry & livestock. Major emphasis on rapid expansion of oilseed crops for human & animal consumption. Crash program for increased output of edible oil seeds with heavy emphasis on soybean crop. Link farmers with National Commodity Board. |
| 7th : 1988-93 | Notes that previous plan failed to improve production of oilseed crops due to absence of comprehensive oilseed project. Proposes incentives to farmers in the form of assured prices and financial/technical assistance. Accelerate research on high yielding variety. |
| 8th : 1993-98 | Notes that previous plans did not result in significant improvement in oilseed. Targets breakthrough in oilseeds & doubling of production. |
| Medium Term Development Framework 2005-10 | Targets 50% growth in domestic oilseed production, through: (a) high yielding varieties and improved research/extension services for sunflower/canola; and (b) increasing area under cultivation, such as replacing late sown wheat with sunflower. Large scale plantation of oil palm in coastal areas of Sindh & Balochistan also proposed along with olive in KP & other suitable areas. |
| 11th: 2013-18 | Proposes measures to promote olive. Recommends launch of program on research, extension & increased production of soybean. Targets 26% growth in rapeseed and 148% increase in sunflower. Mentions that efforts to be made on palm cultivation but no plans proposed. |

Source: Five Year Plans, Planning Commission, Ministry of Planning Development and Reforms

# Understanding the drivers – Supply Side

## Brief Institutional History of Oilseed Development in Pakistan




Source: M. Aftab et al., (2021), 'Prospects of Oilseed Crop in Pakistan (2nd Edition)', Ayub Agricultural Research Institute and PODB

# Recent developments on the supply side

Under Federal government's Agriculture Emergency Programme, a National Oilseed Enhancement Programme (NOEP) in collaboration with provincial agriculture department

Key measures planned under the five-year NOEP are:

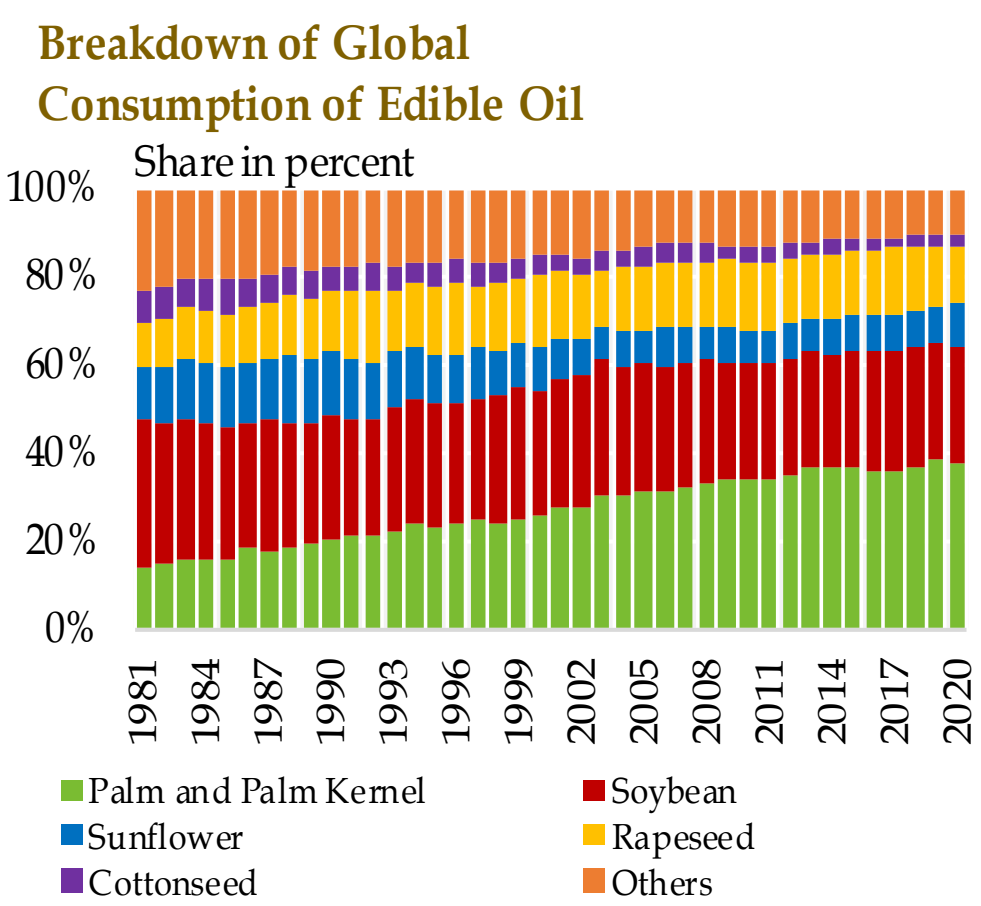
1) productivity enhancement of wheat, rice and sugarcane to vacate up to 3.25 million hectare of land for the cultivation of **canola, sunflower and sesame;**

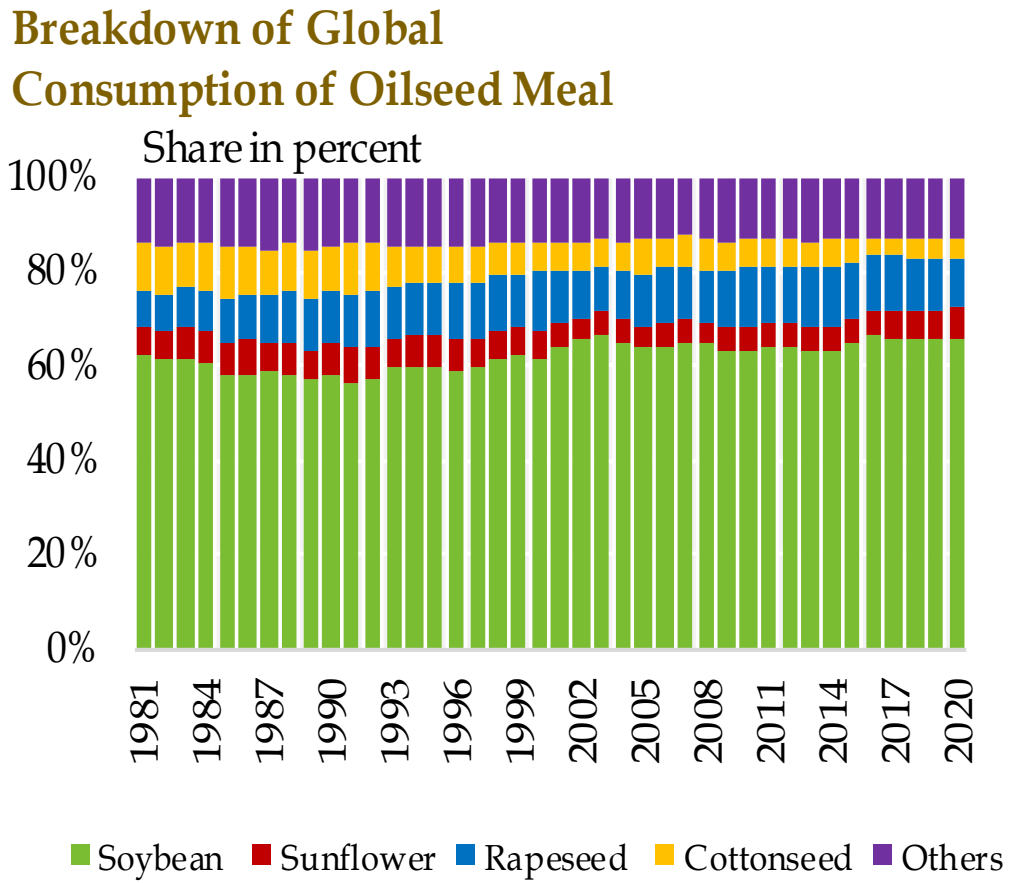
2) increasing the yield and area under acreage of cotton to produce 15 million bales, which will increase the supply of cottonseed oil; and increasing the yield of **sunflower and canola**.

In Punjab, Oil Seed Promotion Initiative taken in FY18 revolves around preparing crop calendars for **sunflower and canola**, fixing district wise targets, trainings to master trainers of agriculture extension departments and private seed companies, and provision of subsidies

# Recent developments on the supply side

- But these measures may not be expected to move the needle

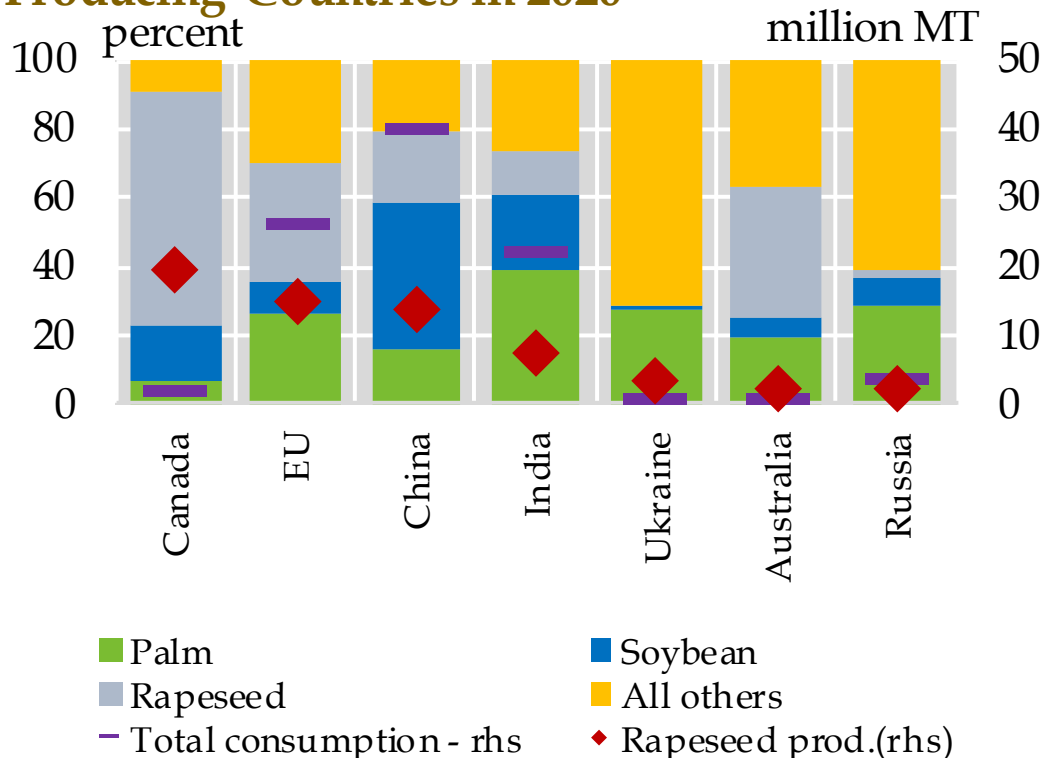


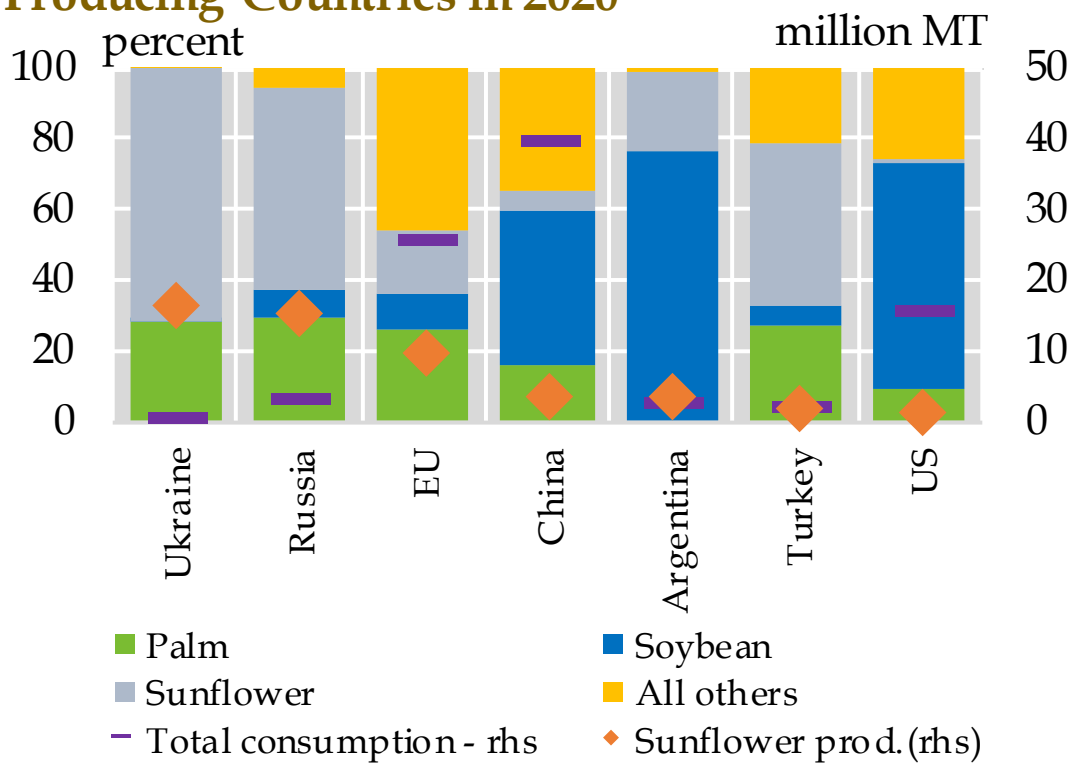

Source: Foreign Agriculture Service, United States Department of Agriculture

# Recent developments on the supply side

## Share of Palm and Soybean oil Consumption in Top-7 Rapeseed Producing Countries in 2020



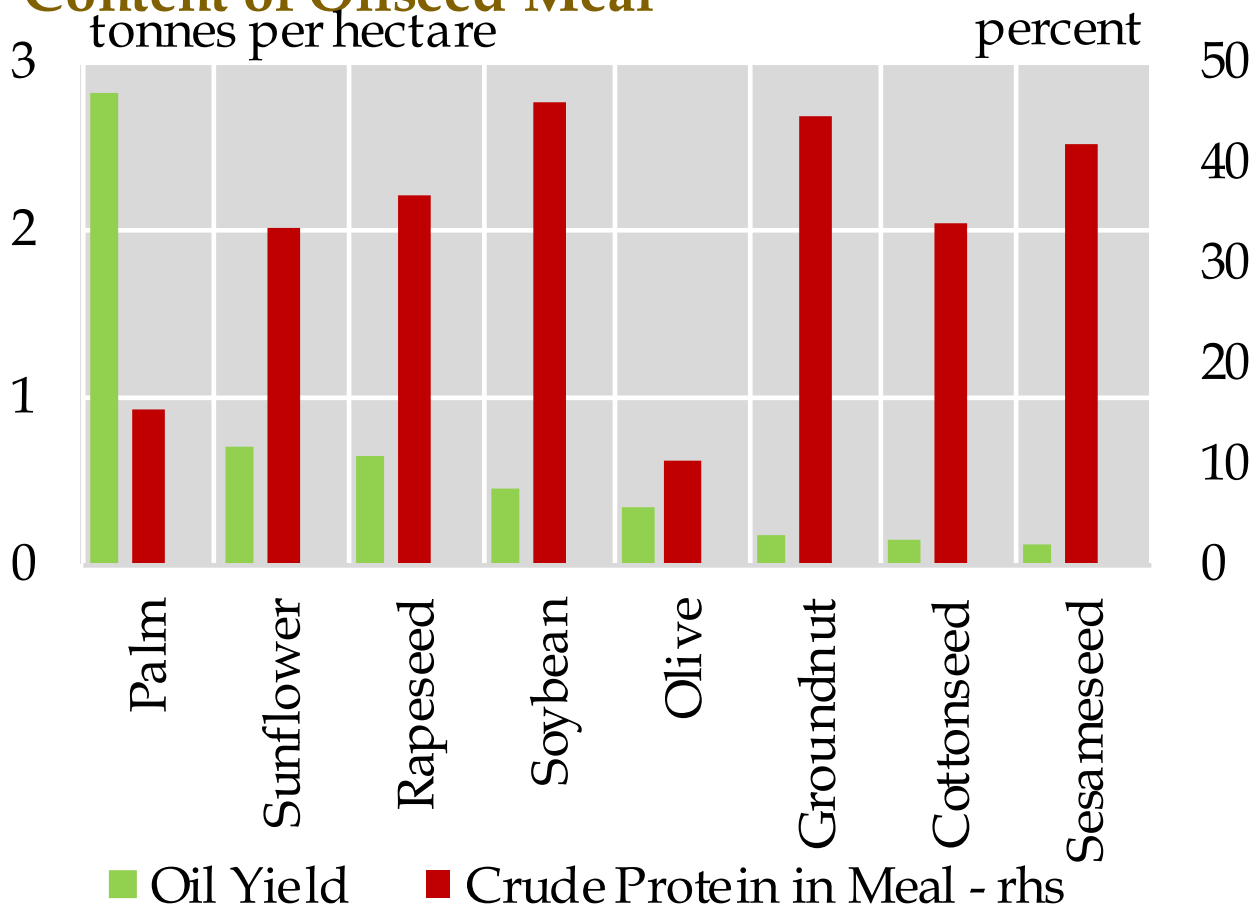

## Share of Palm and Soybean oil consumption in Top-7 Sunflower Producing Countries in 2020




Source: Foreign Agriculture Service, United States Department of Agriculture

# Recent developments on the supply side

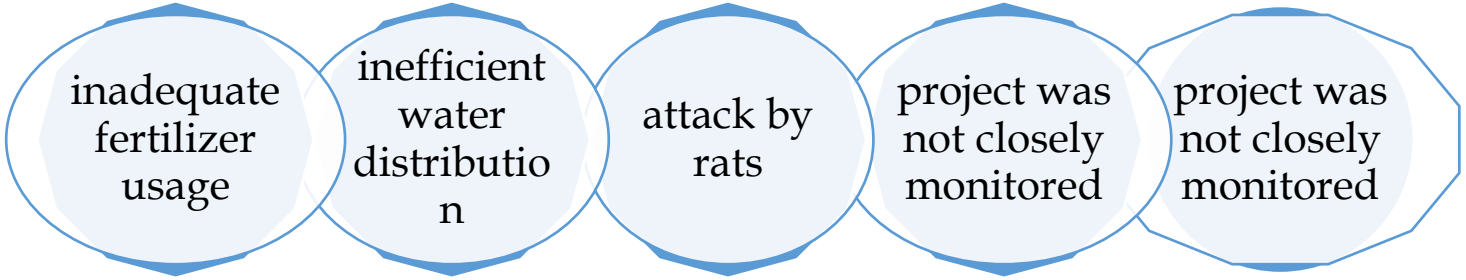
## Oil Yield of Oilseeds and Protein Content of Oilseed Meal




Source: Our World in Data and INRA-CIRAD-AFZ feed tables

# The story of palm

- 1994 - NARC surveys 3.86 million hectares in Sindh
- About 1.65 million hectares were considered "***suitable***" under different degrees of suitability, and the rest was not recommended.
- PODB starts pilot in 1998 and in 2007 an estimated 2,200 acres of oil palm was planted in private, public and forest farms located in various areas in Sindh and Balochistan.
- However, after initial years of promising growth, the pilot project faced various types of management issues and operational bottleneck.




- The result: we were unable to test the theoretical potential.
- 2017: Sindh Coastal Development Authority begins a small pilot (50 acres)
  - Initial results suggest fruiting at par with plantations in Malaysia.
  - But too small a pilot and it is not yet reviewed by a body of agri. science experts

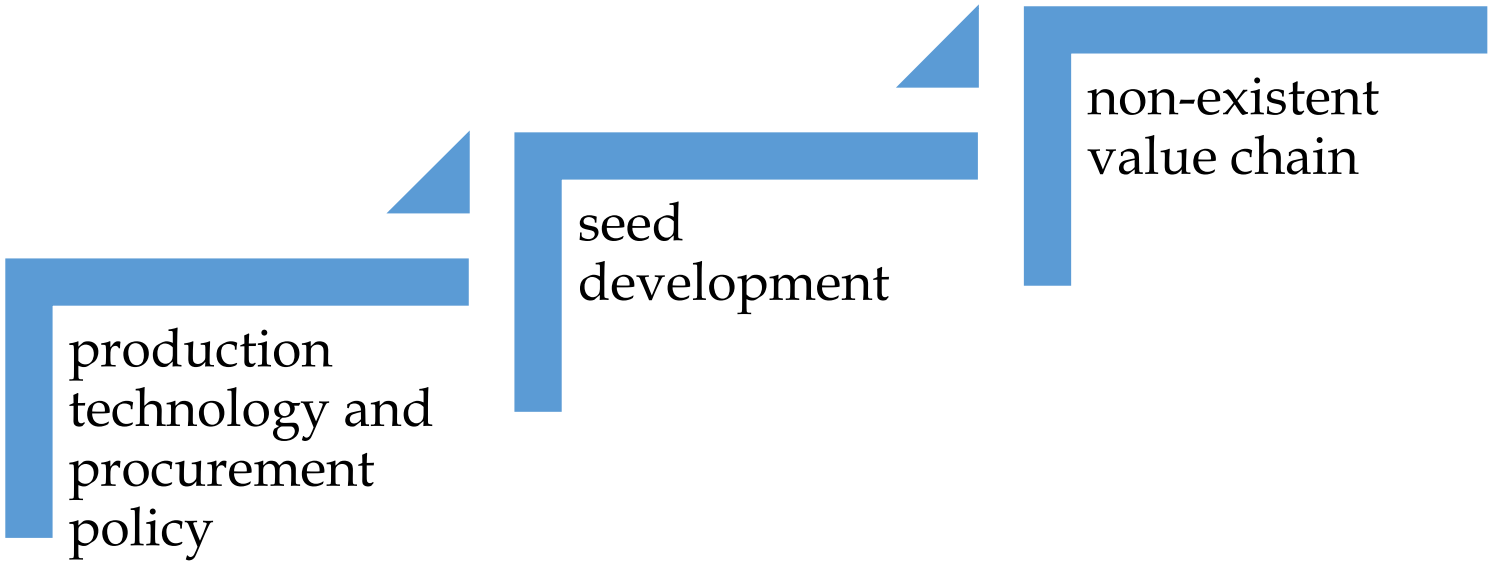
# The story of palm

**Conclusion:**

- Short to medium term: palm seem to have no potential since it will takes several years…from testing and to scaling up if need be
- In the long run: this is an area that needs to be looked at from food security point of view…we have a large population and rising middle class
- Challenges: lack of tropical rain weather; weak farm management and know-how of palm in private sector
- In India, palm is being developed as an irrigated crop, unlike palm plantations in Malaysia and Indonesia that benefit from plenty of rains
- Palm was not native to Malaysia and Indonesia and it took various types of consistent government-led efforts with private sector involvement in Malaysia and Indonesia to become dominant producers

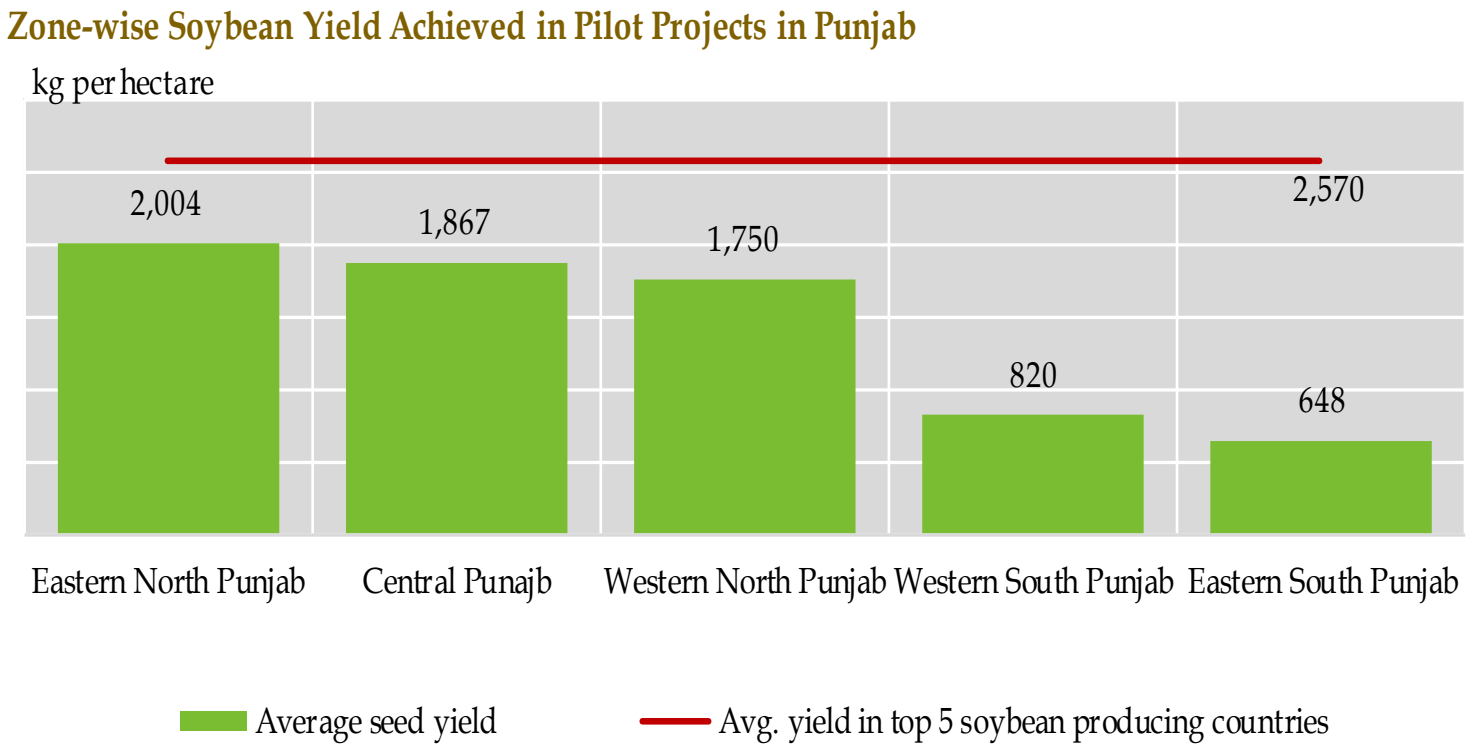
# The story of soybean

- Formally introduced in 1969
- Policy measures for soybean recommended since the first five-year plan in 1955, but support price for the crop was not announced until 1978
- But despite support price it didn't work



# The story of soybean – recent updates

- A heat tolerant variety called Faisal Soybean has been developed and piloted by Oil Research Institute (ORI) Faisalabad in 2018-19.
- The tested variety in these regions is a 120- day crop




Source: ARI (2021) and USDA

# The story of soybean – recent updates

- NARC has also developed a short duration variety (NARC-2020) that matures in 90 days with production potential up to 1000 kg per acre

## Potential Area for Soybean Cultivation

| Province | Area/Cropping System | Estimated Area Availability (thousand hectare) |
|---|---|---|
| Punjab | Rawalpindi division | 202 |
| | Riverine area (Mianwali, Bhakkar, Layyah, Muzaffargarh, D.G. Khan and Rajanpur) | 1 |
| Sindh | Lower Sindh (Thatha and Badin, Sangharh etc.) | 20 |
| Khyber Pakhtunkhwa and GB | Peshawar, Mardan, Malakand and Hazara Division and Tribal districts | 202 |
| **Total** | | **426** |

Source: Soybean Promotion for Reducing Soya meal and Edible Oil import in Pakistan, NARC, concept paper

# The story of soybean – recent updates

**Combined potential**

- ORI: 9.5 million hectares or 23.45 million acres in Eastern North Punjab, Central Punjab and Western North Punjab

- NARC: 1 million acres of cultivatable area in Pothwar region of Punjab, Khyber Pakhtunkhwa and Gilgit Baltistan

- If currently available varieties of soybean in the country is grown, including inter-cropping with maize, then in the medium term, at conservative estimates of 1 ton per acre grown at only 0.5 million acres out of total suitable areas identified by ORI and NARC, Pakistan can potentially grow 0.5 million tons.
    - Which equals: 20% of the country's FY21's soybean import quantity

## Final Remarks

- Pakistan's demand for edible oil more than doubled in the last two decades from 2 million tons in 2001 to 4.7 million tons in 2020. Similar growth was witnessed over the two decades preceding 2000.

- At this rate, the demand for oilseed can be expected to rise significantly over the next 20 years, driven by rising population, and modernization of poultry, livestock and aquaculture industries to cater to exports and to meet rising domestic meat consumption

- In the short to medium term, a policy focus on increasing the production of canola and sunflower is necessary.

- But in the long run it does not move the needle

- Consumption patterns and our demand outlook warrants through public deliberation across public and private sector stakeholders and if we chose to pilots or make attempts then we should learn from past mistakes

**Thank You!**

For details:

https://www.sbp.org.pk/reports/quarterly/fy22/First/qtr-index-eng.htm