



Protein Meal: Present, Future Trends & Challenges

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SSOY
Delivers Solutions

USSEC

COUNTRY FOCUS

- Population: 1.42 Billion with a median age of 28.2 years
- GDP: \$3.75 trillion (2023)
- Forex reserves: \$625 billion (2023)
- Per capita GDP: INR 220,240 / \$2610 (2023)
- Gross Value of Agriculture & allied sectors in GDP: 20%
- Livestock Sector's contribution: 5% to the GDP and 25% to Agriculture GDP
- Livestock Sector's contribution: employment to 8% of the population

India - Per capita Consumption/Availability

80 eggs /year
NIN recommendation -180

Egg

6.9 kgs /year
5.4 Kgs/year
NIN recommendation -11Kgs

**Meat &
Broiler meat**

India- 0.60 gms (intake)
72% is from Cereals
ICMR -0.8 to 1 gm/kg body weight

Protein

India -6.31 kgs per year

Fish

1.02 Kgs /year
Availability

Soy (food)

India - 444 gms per day

Milk

Sources: USDA, NDDB, Director of Fisheries state Government; www.internationalegg.com

ICMR -Indian Council of Medical Research recommendation, NIN :- National Institution of Nutrition

Ministry of Fisheries, Animal Husbandry & Dairying

INDIA'S POSITION

Description	Current Rank	FY 2022	FY 2010	Rank
Milk Production	1 st	221 MMT	116 MMT	2 nd
Fish Production	3 rd	16.2 MMT 4.1 Marine 12.1 Inland	8.1 MMT	4 th
Egg Production	2 nd	129 billion	54 Billion	7 th
Broiler Meat Production	5 th	4.75 MMT	2.65 MMT	6 th

Sources: nddb.coop; lives tock census, www.ijirset.com; Director of Fisheries state Government; www.internationalegg.com

FEED PRODUCTION -INDIA

data from **AGRI-FOOD OUTLOOK | 2023 BY ALLTECH**

Country	Sum of 2021 total feed production (MMT*)	Sum of 2022 total feed production (MMT)	Growth (MMT)	Growth %
China	268.343	260.739	(7.604)	-2.83%
United States	237.977	240.403	2.426	1.02%
Brazil	81.239	81.948	0.709	0.87%
India	44.059	43.360	(0.700)	-1.59%
Mexico	39.684	40.138	0.454	1.14%
Russia	33.000	34.147	1.147	3.48%
Spain	35.838	31.234	(4.604)	-12.85%
Vietnam	20.920	26.720	5.800	27.72%
Argentina	26.719	25.736	(0.983)	-3.68%
Germany	24.506	24.396	(0.110)	-0.45%



FEED PRODUCTION -INDIA

data from **AGRI-FOOD OUTLOOK | 2024 BY ALLTECH**

Top countries	2023 feed tonnage (MMT)	2022 feed tonnage (MMT)	Growth (MMT)	Growth %	Rank, 2023	Rank, 2022
China	262.71	260.74	1.97	0.76%	1	1
USA	238.09	240.82	-2.73	-1.13%	2	2
Brazil	83.32	81.81	1.51	1.84%	3	3
India	52.83	46.58	6.26	13.43%	4	4
Mexico	40.42	40.41	0.01	0.02%	5	5
Spain	36.22	37.45	-1.23	-3.28%	6	6
Russia	35.46	34.15	1.31	3.83%	7	7
Vietnam	24.15	26.72	-2.57	-9.63%	8	8
Japan	23.94	24.21	-0.28%	-1.15%	9	10
Türkiye	23.37	26.41	-3.03	-11.48%	10	9

FEED PROD, PROJECTION

	2022/23	2023/24)	2024/25 (F)	2025/26 (F)
Broiler feed demand	16.0	17.00	17.90	18.6
Layer feed demand	11.9	13.50	15.00	15.90
Cattle feed demand (org)	16.03	17.15	18.35	19.64
Aqua feed demand	2.43	2.7	2.9	3.1
	46.36	50.35	54.16	57.24

SOYMEAL CONSUMPTION

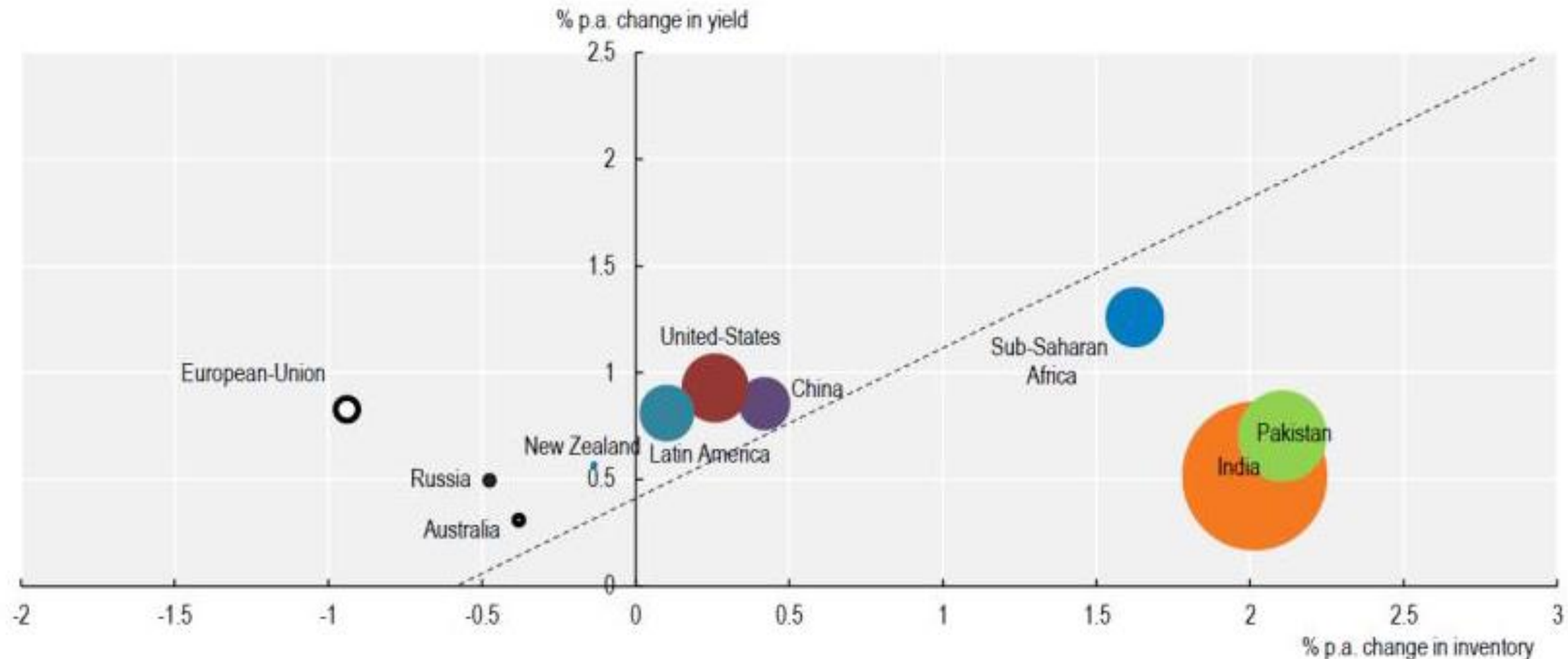
	2022/23	2023/24)	2024/25 (F)	2025/26 (F)
Broiler feed demand	4	4.25	4.475	4.65
Layer feed demand	1.19	1.35	1.5	1.59
Cattle feed demand (org)	0.401	0.429	0.459	0.491
Aqua feed demand	0.52	0.53	0.55	0.6
	6.11	6.56	6.98	7.33

Tariff/non-tariff barrier scenario of SB/Soymeal in India

Product	Tariff	Nontariff
SOYMEAL	Soymeal Basic (15) Social welfare (10) IGST 5 total 22.325	GM is permitted only in 2021 , again under TRQ
SBM GM govt allowed last year under TRQ for 1.2 million mts, and import came around 0.8 Million mts, of which around 5000 Mts was imported from the U.S.		
SOYBEAN	Basic (45) Social welfare (10) IGST 5 total 56.975	GM is still not permitted , (detailed notes next page)

One out of three hurdles exporters would need to clear on the phytosanitary side
 Origination from a weed-free crop or designated weed-free area
 Zero dockage declaration on the phyto
 Devitalisation of the bean itself

Figure 1.30. Changes in inventories of dairy herds and yields, 2020-2022 to 2032

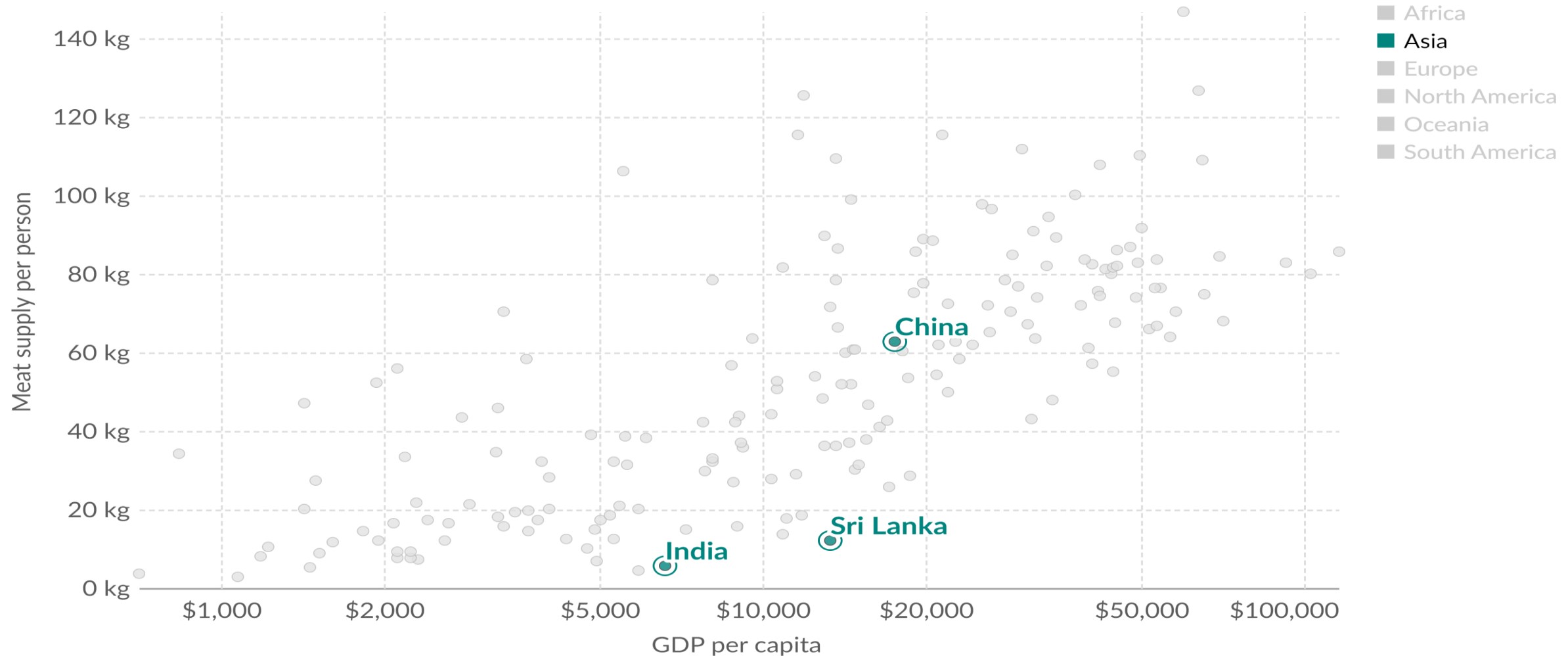


Note: The size of the bubble reflects absolute growth in dairy production between 2020-22 and 2032.

Source: OECD/FAO (2023), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-outl-data-en>.

Meat supply vs. GDP per capita, 2021

Average meat supply per capita, measured in kilograms per year versus gross domestic product (GDP) per capita measured in constant international-\$. International-\$ corrects for price differences across countries. Figures do not include fish or seafood.

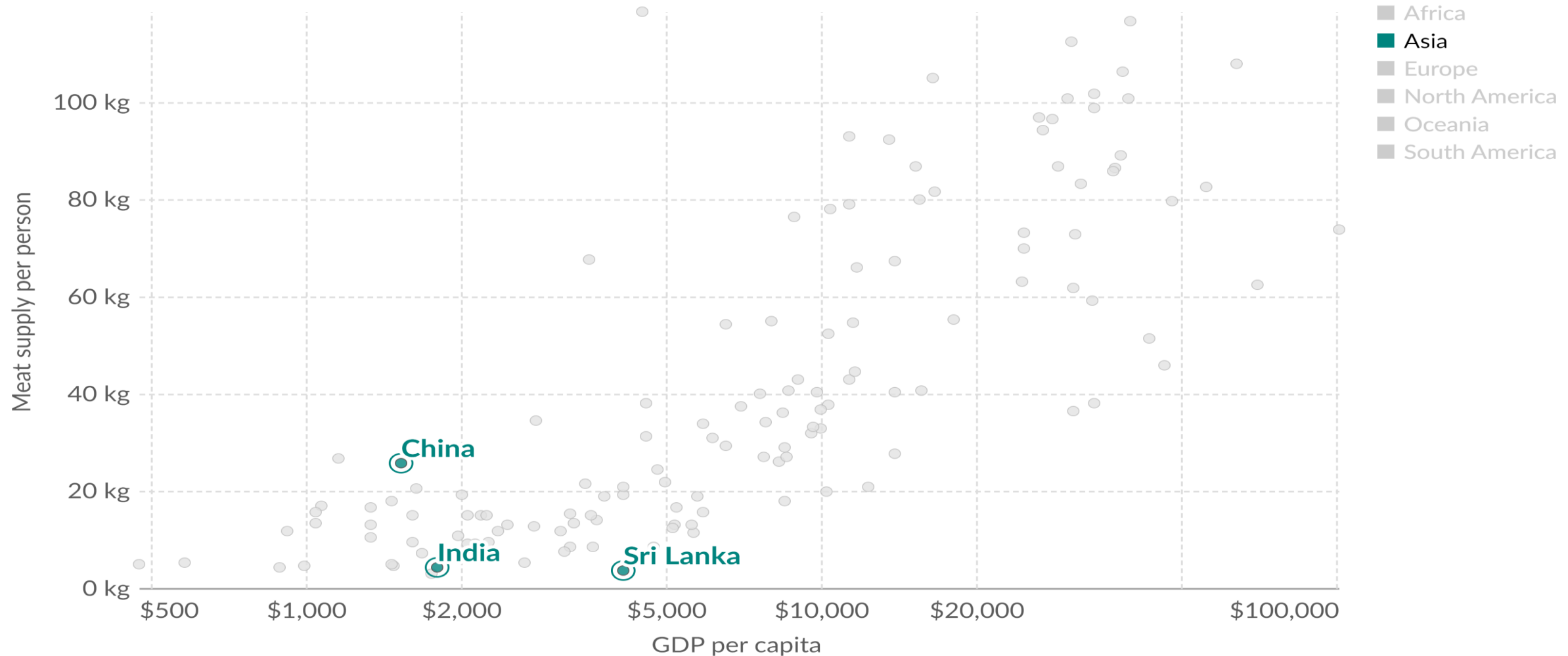


Data source: Food and Agriculture Organization of the United Nations (2023); World Bank (2023)

OurWorldInData.org/meat-production | CC BY

Meat supply vs. GDP per capita, 1991

Average meat supply per capita, measured in kilograms per year versus gross domestic product (GDP) per capita measured in constant international-\$. International-\$ corrects for price differences across countries. Figures do not include fish or seafood.



Data source: Food and Agriculture Organization of the United Nations (2023); World Bank (2023)

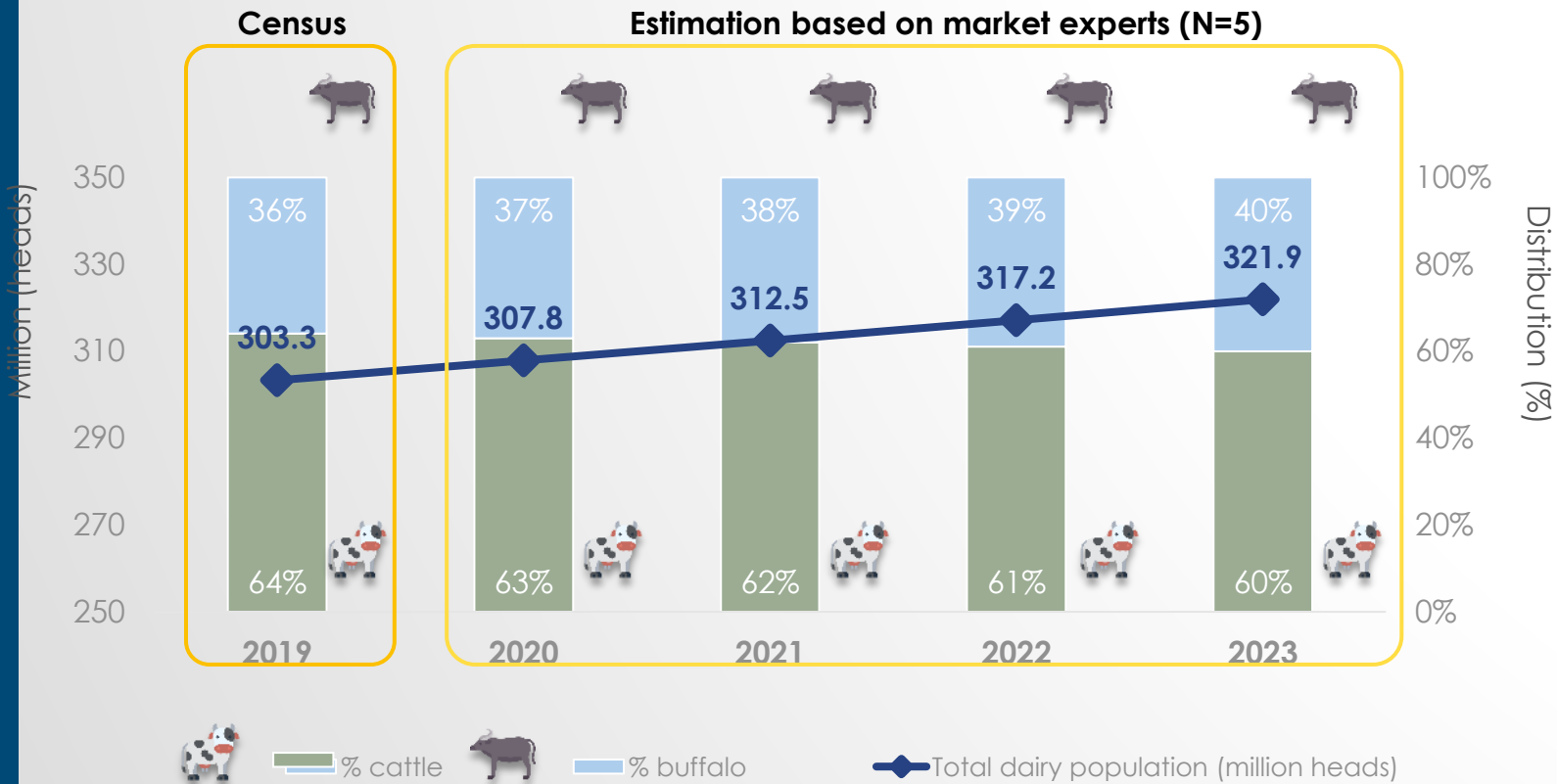
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TREND & OUTLOOK OF DAIRY POPULATION

- Despite market experts being unable to give the exact figures, they all shared a similar sentiment → dairy population is on an upward trend and the momentum will keep going in the coming years.

N=5

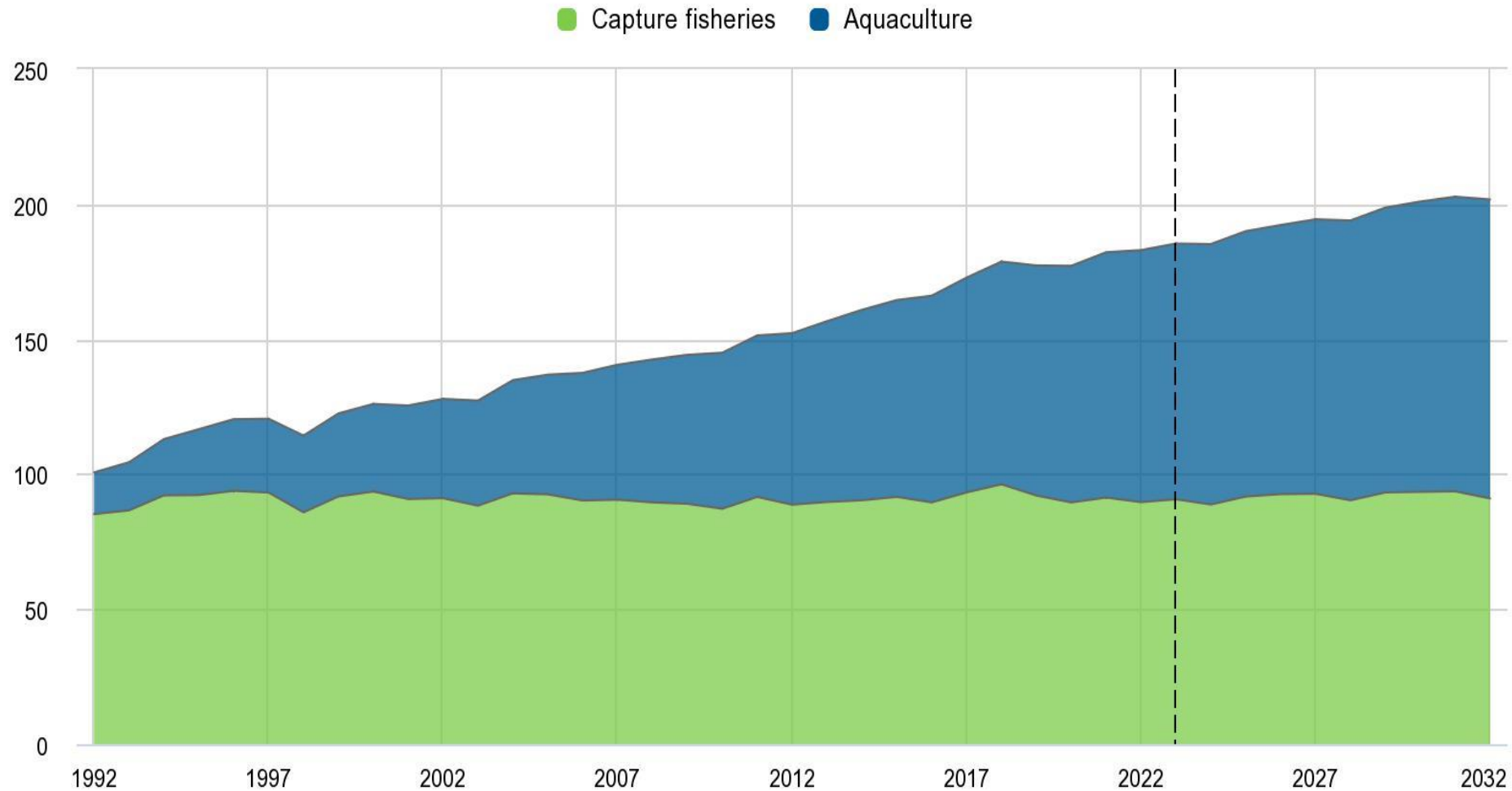
Total cattle and buffalo population from 2020 to 2023 in India



- In India, the industry is dependent on the census data. Hence, respondents can only provide feedback based on the latest census data (2019).
- There have been mixed views on the dairy population in the past three years. Most perceive dairy cattle and buffalo as having a slow growth rate of 1-2% per annum.**
- A **minority** claim the dairy livestock population on the downward trend mainly contributed to the **anti-slaughtering law** (only applicable to cattle, not buffalo).

Figure 8.3. Aquaculture and capture fisheries production

Million metric tonnes



OECD

India is the second-largest producer of Shrimp and fish

India has the capacity to produce 4 million tonnes of Aqua feeds

India produces around 1.5 million tonnes of Shrimp feeds and a 1.2m tons of Fish feeds

There are around 70 feed mills in India

India is the largest exporter of frozen shrimp to the US market

Note: Data are expressed in live-weight equivalent.

Source: OECD/FAO (2023), "OECD-FAO Agricultural Outlook" OECD Agriculture statistics (database),

<http://dx.doi.org/10.1787/agr-outl-dataen>.

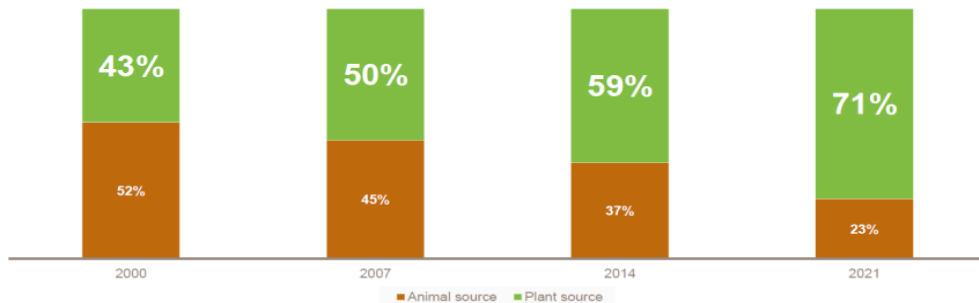
Snapshot of Indian Aqua

- Shrimp
- Production around 900,000 mts
- Disease is the major threat to losses
- Higher dependency on the export market
- Potential for the domestic market
- Shrimp feed requirement is 1.4 mmt SBM Inclusion is around 30-40%

•FISH

- Est. Fish production is more than 12 MMT
- Fish production through culture is < 7 MMT
- Production of Fed Fish est. 2 MMT
- Carps dominate farming
- Use of Formulated feeds will increase production
- SBM inclusion is around 5-10%

Changing preference towards plant source

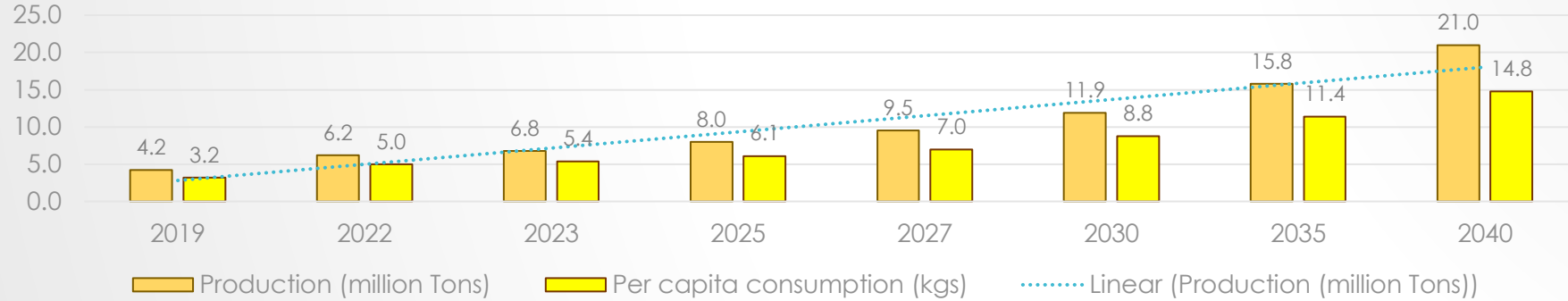


Source: Aquafeed formulator

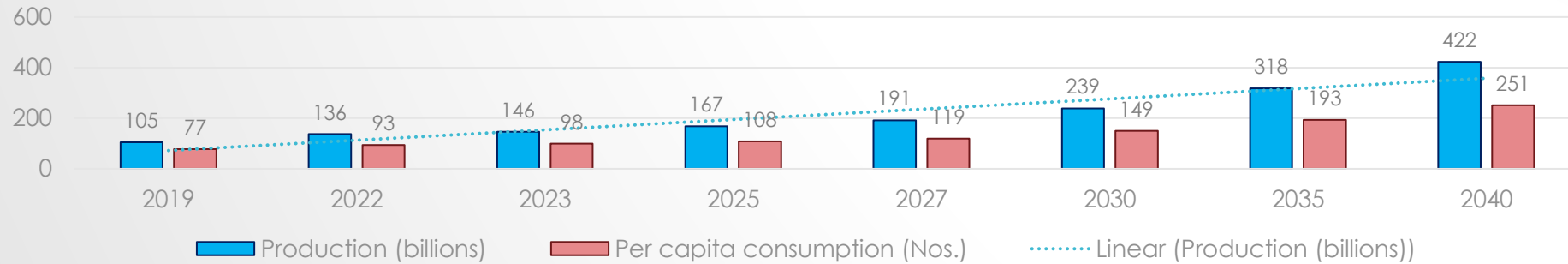
capacity to produce 4 MMT of Aqua feeds
produces 3-3.5 MMT of Aqua feeds
From 70 feed mills in India



Poultry Meat Projections



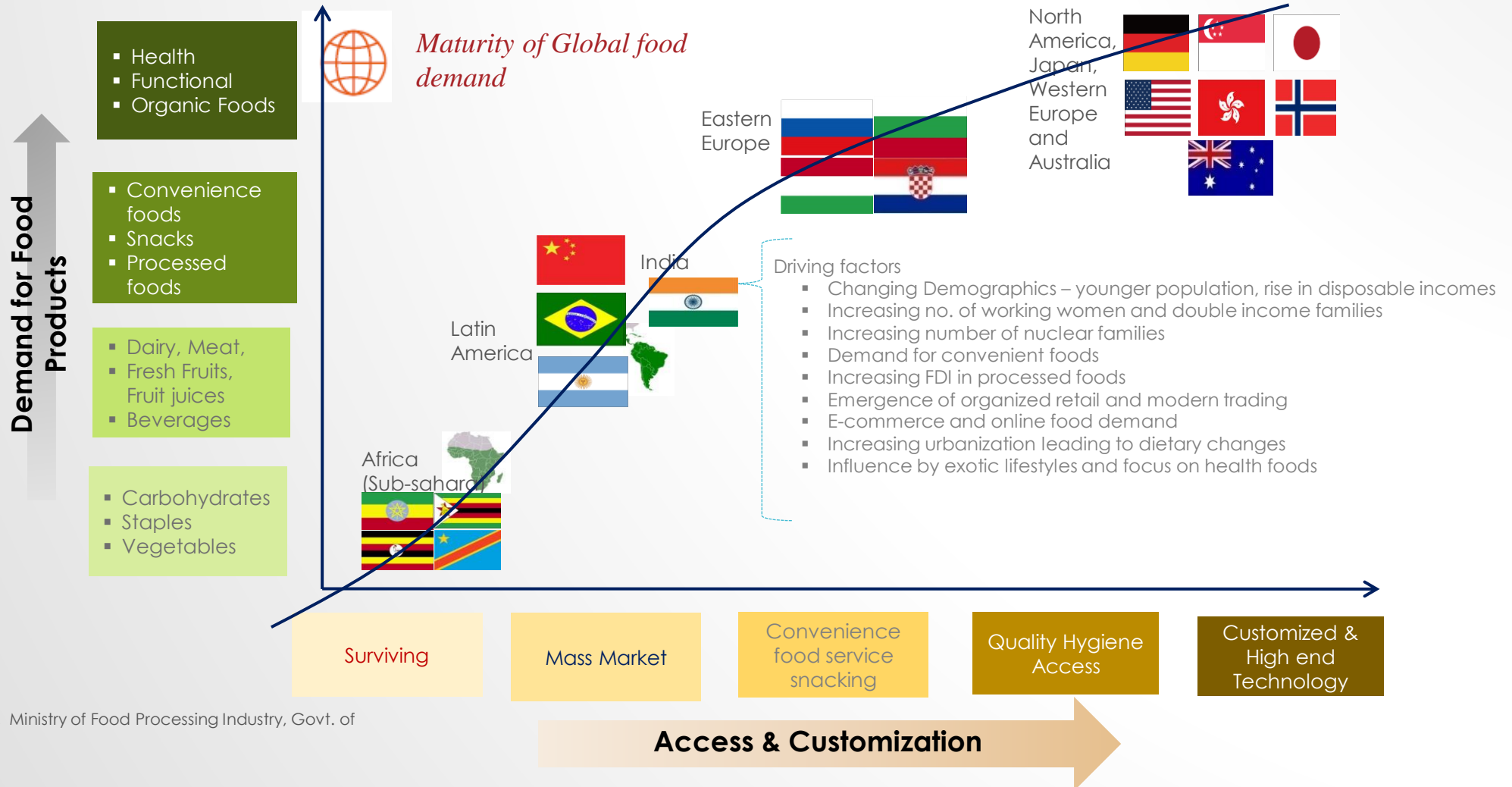
Eggs Projections



- ❖ By 2040, Indian population is projected to reach 1.6 billions (160 Crores)
- ❖ Conservative estimates shows a 5 fold increase in meat production and 4 fold increase in egg production

Source: Amarthi Consulting, Department of Animal Husbandry and Dairying in projections

India is rapidly rising on the maturity of food demand



Source: Amarthi Consulting, Ministry of Food Processing Industry, Govt. of India

Industry updates

Frozen shrimp comprises nearly 70 per cent of seafood exports from India, which reached a record \$8.09 billion in FY23. The US is currently the largest market for Indian seafood, mainly shrimp

Exports of poultry products such as eggs and egg products, which crossed the ₹1,000 crore mark in the first nine months, are set to scale to hit a new record of ₹1,200 crore to ₹1,400 crore in the current financial year 2023-24 on strong demand from countries such as Oman and Sri Lanka among others.

Projects worth of Rs 14,656 crore have been approved under PMMSY during last three years: Shri Rupala
Rs. 5,000 crore investment under Blue Revolution Scheme;

Rs. 7,522 crore Fisheries and Aquaculture Infrastructure Development Fund (FIDF);

Rs. 20,050 crore investment under Pradhan Mantri Matsya Sampada Yojana;

Rs 6,000 crore Sub-scheme under PMMSY, announced in Union Budget 2023-24

...OUR SOYMEAL SUPPLY & DEMAND

	22-23	23-24	24-25	25-26	(Oct-sept)
C/F Previous year	1.52	1.18			
Production (as per SOPA)	12.04	11.87			
Imports SB	0.70	1.00			
Total Supply	14.26	14.05			
Reserved for Sowing	1.30	1.30			
Direct Human Consumption (SB)	0.60	0.70			
Exports of Seed	0.50	0.50			
Marketable Surplus	11.86	11.55			
Meal Equivalent	9.73	9.47			82% meal
domestic requirement	6.10	6.56	7.64	8.00	@4.8/month
Exports	1.80	1.50			
Human food (meal/flour)	0.75	0.80			
Demand in total	8.65	8.86			
Gap	1.08	0.61			
Imports Meal	0.00	0.00			
C/F	1.08	0.61			

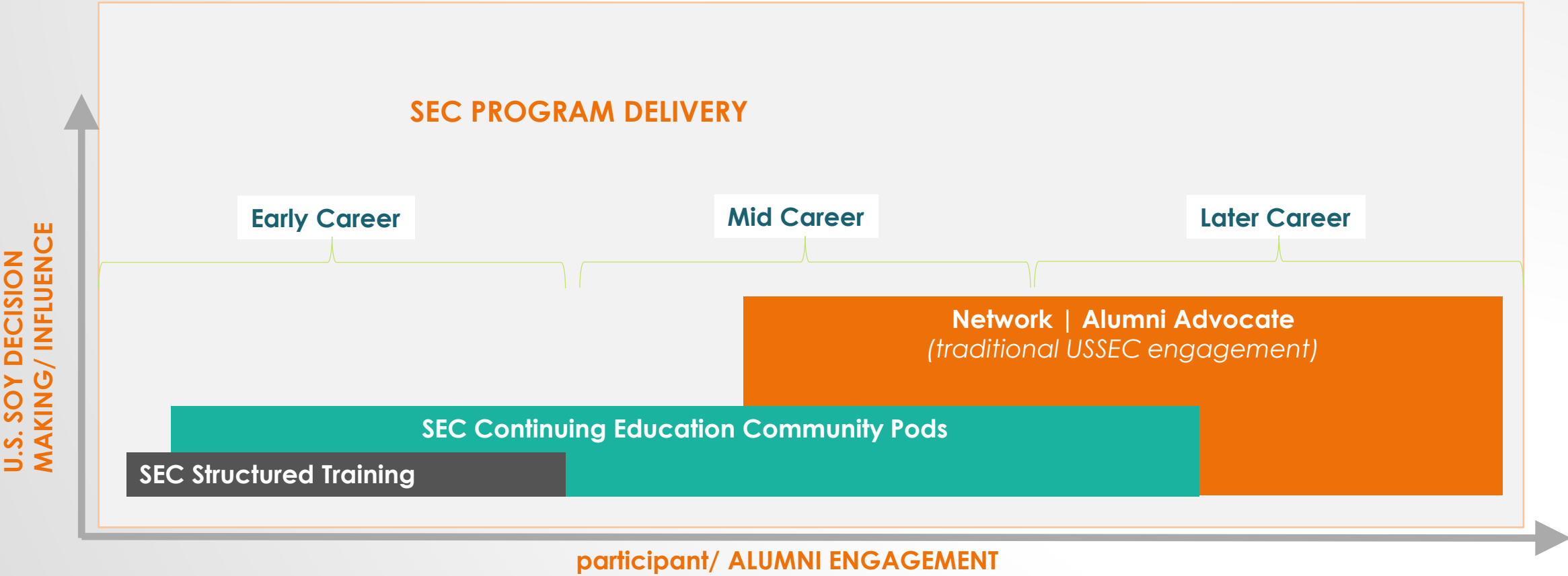


SOY EXCELLENCE CENTER AN OVERVIEW (INDIA SPECIFIC)



**EXCELLENCE
CENTER**
A  SOY program

The SEC program is centered around training tracks and community pods, which target; largely early and mid career individuals



USSEC established the Soy Excellence Center program to help growing markets address protein challenges and support a cascade of demand for soy and soy-related products

WHAT ARE SOY EXCELLENCE CENTERS (SECS)

Construct agricultural expertise in growing markets



Support total soy utilization & protein production in emerging and expansion markets



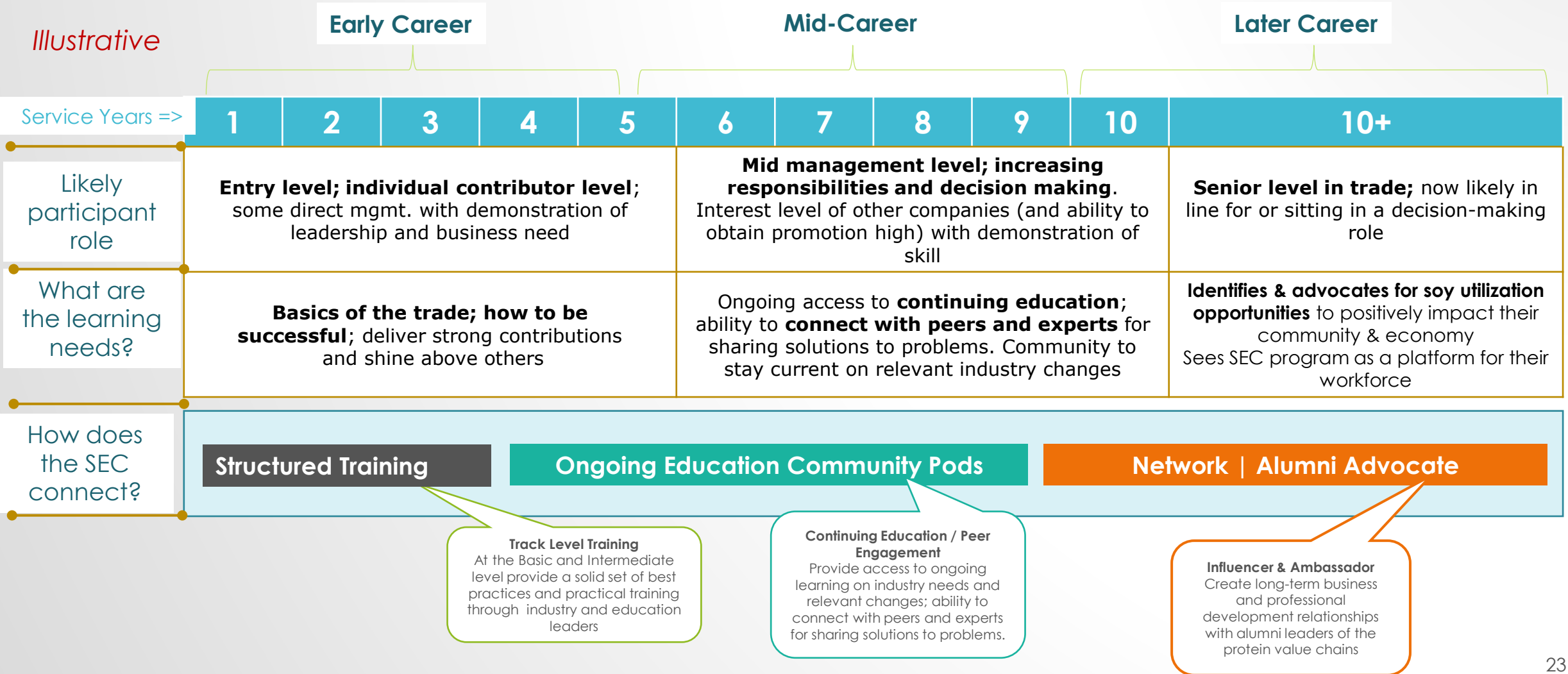
Work force training and capacity building



Create long-term business and professional development relationships between the future leaders of the protein value chains

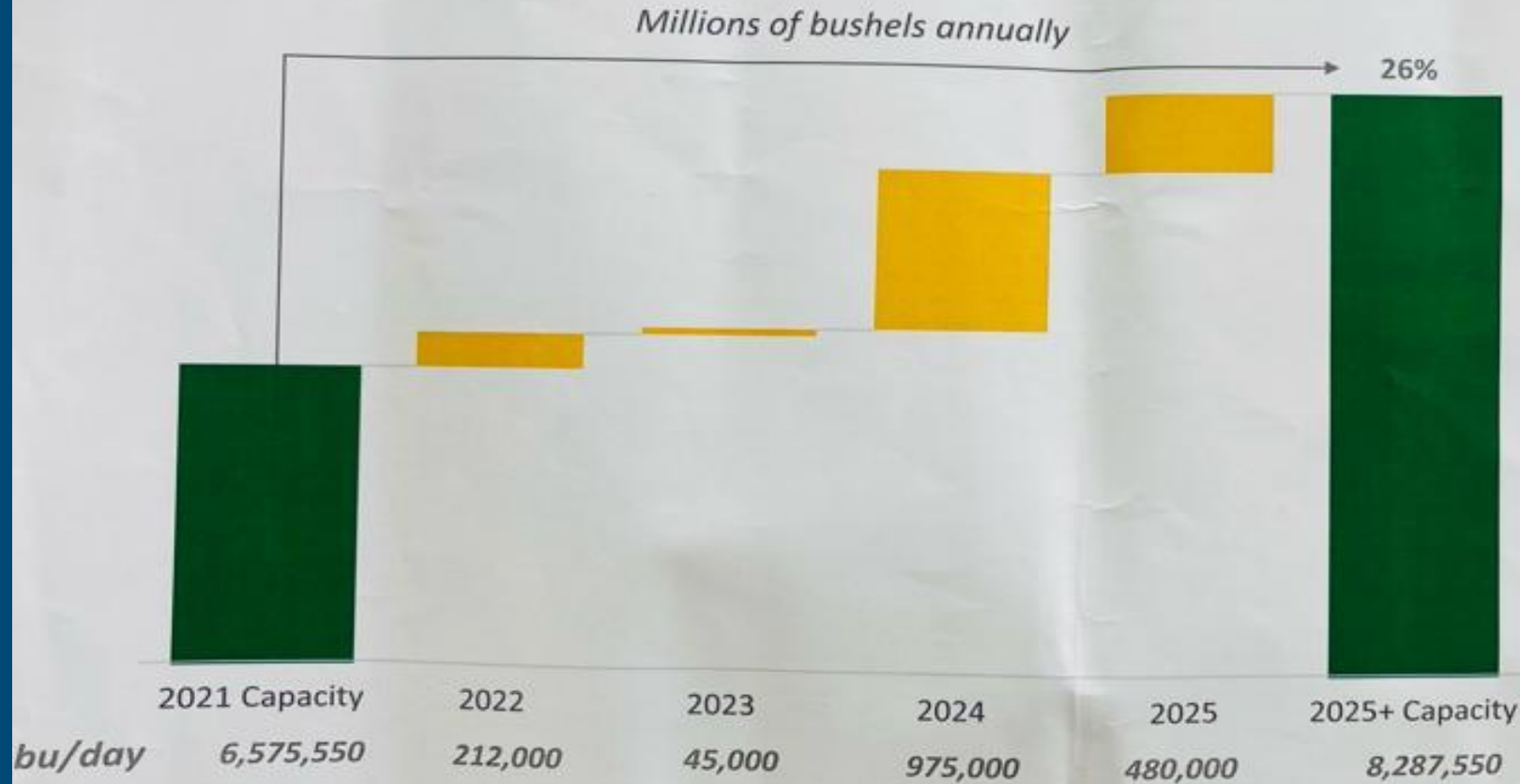
THE SEC LEARNING CONTINUUM IS BUILT FOR LONG-TERM IMPACT

Illustrative



U.S. Soybean Crush Capacity Expansion

A number of soybean processing capacity expansions are likely to occur



2022	SRSP	Shell Rock, IA	110K
	Bunge	Council Bluffs, IA	25K
	Cargill	Cedar Rapids, IA	14K
	Continental Refining	Somerset, KY	8K
2023	AGP	Sergeant Bluff, IA	25K
	Cargill	Fayetteville, NC	20K
2024	ADM	Spiritwood, ND	150K
	NDSP	Casselton, ND	125K
	Bunge	Cairo, IL	125K
	Bunge	Destrehan, LA	115K
	Cargill	Sidney, OH	110K
	Platinum	Alta, IA	110K
	Norfolk Crush	Norfolk, NE	110K
	Marquis	Hennepin, IL	110K
	Perdue	Chesapeake, VA	20K
2025	AGP	David City, NE	150K
	Epitome	Crookston, MN	120K
	SDSP	Mitchell, SD	100K
	Bartlett	Montgomery, KS	110K

What to Expect in next 3 Years Soybean Meal

- Greater availability of soybean meal, Higher Quality SBM
- Lower prices of protein in many forms, including SBM
- Seed Technology Companies, Soy Checkoff, and Animal Nutritionists are focusing on higher Crude Protein / Amino Acid Soybeans
- US / State-specific mandates on RD and SAF may encourage more construction. EPA, GREET, CARB, White House unknowns?
- Projections for an additional 20 Million Metric Tons of SBM needed to feed the growing World by 2026...so, current growth (~11 MMT) is not enough! *Per Juan Luciano, CEO of ADM*
- Broilers / Poultry appear to have significant growth opportunities for consumption in the US and Worldwide
- Soybean Meal growth will be “subsidised” by Soybean Oil demand.
- Most likely a ~11 MMT increase in US SBM production in the next 2-3 years.
- Quality UP, Availability UP, Prices DOWN! Priced to “Go Away”!
- US Soy will encourage poultry industry expansion, increased inclusion levels, more cooperation and trust between Nutritionists and Processors, and higher SBM values (energy and amino acids).

IMPACT

↑ Increases

- US Soybean Meal Exports
- US Soybean Acres
- US Soybean Yields / Production
- Exports of US Chicken & Pork
- SBM Inclusion Rates in Feed
- China & Brazil Trade Volumes
- Food Security / Reduce Hunger
- Political Interference in Economics
- Value of Palm and other oil crops

↓ Decreases

- % US Soybeans Exported (Production & World)
- Price of Protein in All Forms
- US Processor Margins
- US Processor Run Time (Crush Rationalization)
- Argentina Crush & Export Volumes (Argy Plant Closures?)
- World Crush Rationalization (China Plant Closures?)
- Inclusion of DDGS and Synthetic Amino Acids
- Exports of other US commodities
- Margins / Demand for Alternative / Lab

National Oil Mission & Rapeseed Production

SnD Scenarios of Rape/Mastard/Taramira	
Carry in Stock with Farmers	0.1
Crop	10.9
retain with Farmers	0.05
marketable Surplus	10.95
Dir Use/ Exports	0.35
Carry in stock with NAFED	0.76
Carry in Stock with Pros & Stockiest	0.21
Available for Crushing	11.57

crop production estimate statwise	
States	mmt
UP	1.60
Raj Inc Taramira	4.70
Pun Har	1.06
Gujarat	0.45
MP	1.42
West Bengal & Otrs	1.68
Total	10.90