

# Livestock & Feed Trends



VOLUME - 18 • NUMBER - 1 • APRIL-JUNE 2020

## CLFMA WEBINAR

Sunday 24<sup>th</sup> May, 2020 at 16.45hrs.



**CLFMA OF INDIA**  
ASSOCIATION OF LIVESTOCK INDUSTRY

### Livestock Industry Post Covid

**MODERATOR**



**Shri. Tarun Shridhar, IAS (Retd.),**  
Former Secretary AH & D.

**SPEAKER**



**Shri. Sagar Mehra,**  
Joint Secretary (Inland Fisheries),  
Department of Fisheries,  
Ministry of Fisheries, Animal Husbandry  
& Dairying, Government of India,

**SPEAKER**



**Shri. Dr. O. P. Chaudhary**  
Joint Secretary (NLM),  
Department of National Livestock Mission,  
Ministry of Fisheries, Animal Husbandry and  
Dairying, Government of India.

**SPEAKER**



**Dr. Sujit K. Dutta**  
Deputy Commissioner (NLM)  
Department of Animal Husbandry and  
Dairying, Government of India.

**SPEAKER**



**Shri. Chinmoyjit Sen**  
Deputy Commissioner  
(Dairy Development)  
Ministry of Fisheries, Animal Husbandry  
and Dairying, DAHD Government of India.

**SPEAKER**



**Mr. Vijay Thakre,**  
(Fodder Agronomist),  
Assistant Commissioner (Feed & Fodder),  
Feed & Fodder Unit (NLM Division),  
Ministry of Fisheries, Animal Husbandry and  
Dairying, Department of Animal Husbandry  
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**Shri. S. V. Bhawe**  
Chairman CLFMA OF INDIA

Host :

**CHANDRIKA VENKATESH,**  
Executive Director,  
CLFMA OF INDIA



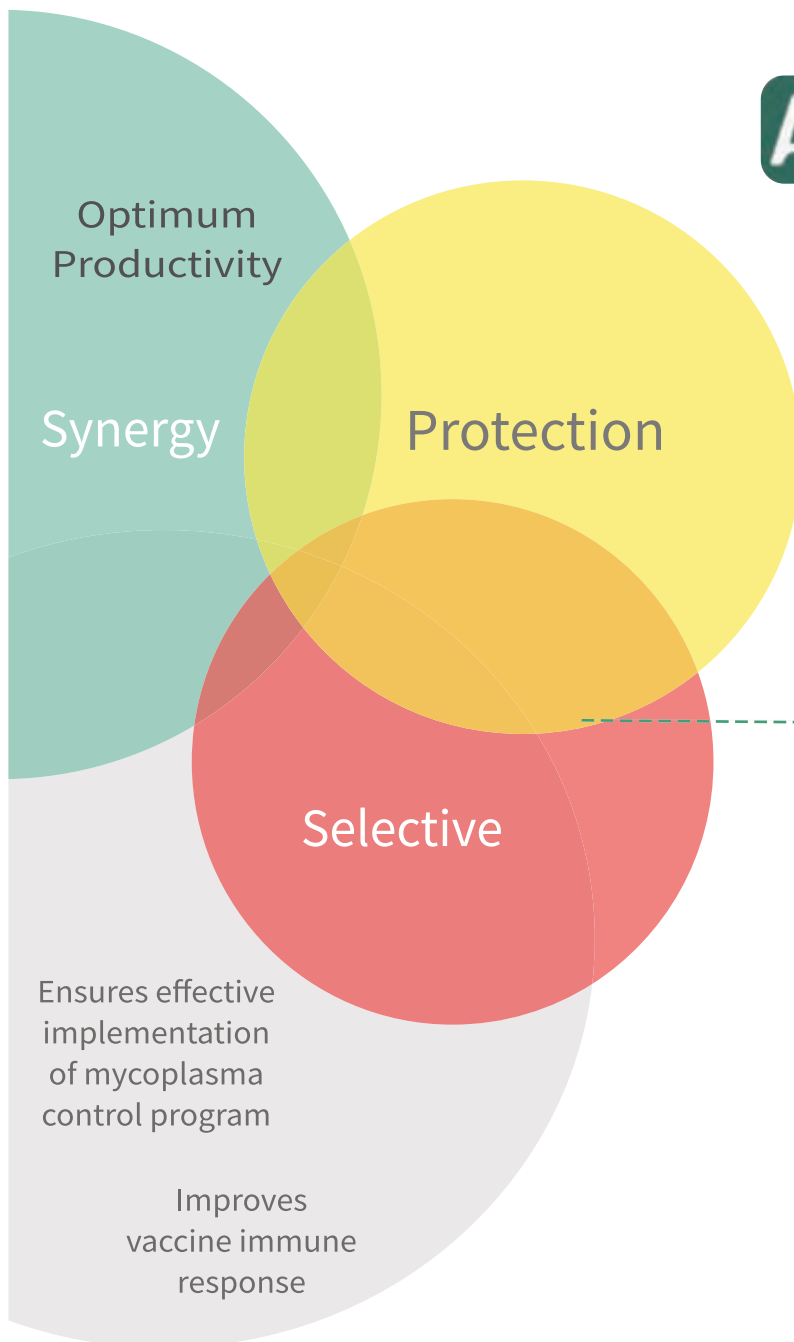
CLFMA WEBINER on "Livestock Industry Post Covid" on 24<sup>th</sup> May, 2020

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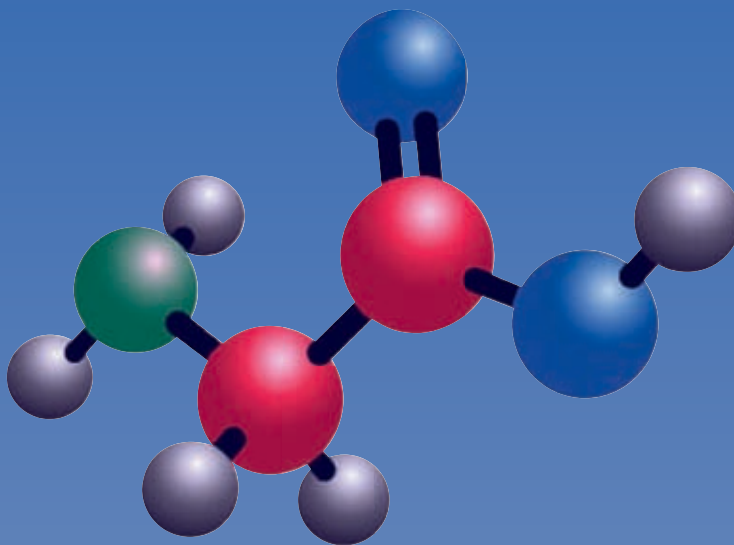


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# From the Chairman's Desk.....



Dear Friends,

Greetings!

This is the first quarterly issue of Livestock & Feed Trends Magazine for the period April to June 2020. It is a time of great stress and uncertainty even though we are delivering our best in this critical situation. It will take some time to come up from this pandemic but hoping for the best.

CLFMA after Covid 19 pandemic helped the Livestock Industry and took a lead role for the survival of Livestock Industry. Providing below a brief overview of the CLFMA activities for the quarter April to June 2020.

On 18th April 2020, CLFMA conducted a Microsoft Teams meeting with the topic "Surviving the Challenging Times" for discussing Possible Action Plan for next 3 months to overcome the COVID crisis viz sharing of ideas between companies. What Associations needs to plan in a joint voice. 20 Managing Committee Members were present and the Meeting was moderated by Past Chairman of CLFMA Mr. B. S. Yadav, MD, GAVL, after which all Association Meeting was scheduled on 7th May, 2020. The details of which is given below.

On 30th April, 2020 CLFMA sent a letter to Shri. Bhuvnesh Kumar, IAS, Principal Secretary AH, Lucknow, Uttar Pradesh to open Chicken and Egg shops as the same is coming under essential services.

On 3rd May 2020, CLFMA sent a letter to Shri. Atul Chaturvedi, Secretary AH & D, Krishi Bhavan, New Delhi with a request to Exempt Imposing additional Import Duty of 15% to various products cleared under certain HS Code Chapter 29, which includes all amino acid and vitamins for animal feeding.

The BIS Draft Amendments document circulated among all the Managing Committee Members for their comments and the comments received has been forwarded to BIS.

On May 5, 2020 CLFMA Submitted representation to Shri. Atul Chaturvedi, Secretary AH & D, New Delhi to exempt 5% GST on Frozen Dressed Chicken (Branded frozen chicken supplied in unit container is classified under HSN Code 02071200, taxable at 5% GST).

On 7th May 2020, CLFMA of India, virtual meeting was conducted at 16:00 hrs to 17:00 hrs. with all CLFMA Office Bearers' and Past Chairmen viz. Mr. B. S. Yadav, Dr. Dinesh Bhosale, Mr. C.V. Rao, Mr. B. Soundararajan, and All India leading "Livestock Association" representatives viz. Mr. C. Vasanth Kumar from PF&BA, Dr Sushanth Rai from Karnataka Poultry Farmers and Breeders Association (KPFBA), Mr Ramesh Babu from Telangana Poultry Breeder Association-TPBA, Mr. Sanjay Brahmanekar - Central India Broiler Breeders Hatcheries Association, Chhattisgarh, Raipur, Mr. R. Lakshmanan - Tamil Nadu Broiler Coordination Committee & Harish Garware, President, IPEMA, Poultry India. The Topic of the Seminar was "Livestock Industry after COVID 19".

On 20th May, 2020 CLFMA issued a letter to Shri. G. N. Singh, Joint Secretary (Admin/Trade/GC/PC/IC), New Delhi-110001 requesting to issue instruction to Animal Quarantine Department for clearance of the product - Betaine Hydrochloride 98%, and it was the product of our member Mr. Tejvinder Singh Chattha, M/s. Indian Trading Bureau Private Limited, 28, Dr Sundari Mohan, Avenue, Kolkata - 700014 and on CLFMA request the member got good support from the government. The product of Mr. Tejvinder Singh Chattha was cleared at the customs and CLFMA appreciates the timely action taken by the government for solving our members problem represented by CLFMA.

CLFMA also conducted Webinar on 24th May, 2020 which was tremendously successful with active participation of Shri. Tarun Shridhar, IAS, (Retd.), Former Secretary AHD as

# From the Chairman's Desk.....

Moderator. The other Speakers of Webinar were, Shri. Dr. O. P. Chaudhary, Joint Secretary (NLM), Shri.Sagar Mehra, Joint Secretary (Inland Fisheries), Shri. Chinmoyjit Sen, Deputy Commissioner (Dairy Development), Mr. Vijay Thakre, (Fodder Agronomist), Dr. Sujit K. Dutta, Dy. Commissioner (NLM), myself. CLFMA has prepared a 20-page report and circulated the details of deliberation and outcome of the webinar to all the participant and government speakers. The queries asked by different participants has been forwarded to the government authorities for their action.

CLFMA is the voice of the Livestock Sector & Members from Poultry Industry is also part of CLFMA. Some of the CLFMA members are facing problems of sampling while importing the consignment. In this connection, on 26th June 2020, we have sent a letter addressing to Shri. G N Singh, Joint Secretary (Admin / Trade / GC/PC/IC), Dept. Of AHD& F, Krishi Bhavan, New Delhi on the subject sampling of import consignment and requested to ease the sampling procedure while import.


As we have started the process of renewal of CLFMA Membership for the year 2020-2021, I would request all the members to renew CLFMA Membership on time.

CLFMA continues to help the Livestock Sector as always. Please take care of yourselves and your loved ones. I know that we're going to get through this together.

Your valuable feedback or any suggestions are welcome anytime for our improvement.

With warm regards,

**For CLFMA OF INDIA,**



**S.V. Bhawe**  
Chairman





**05-06 .....CHAIRMAN'S DESK**

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## Commodity Updates

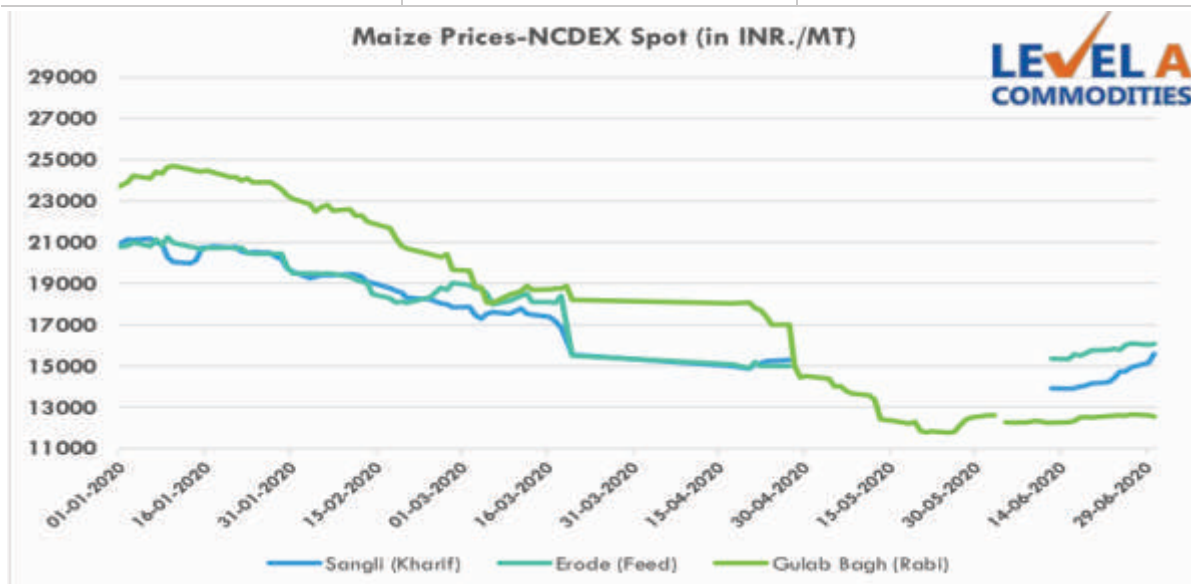


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**Domestic Prices in INR./MT:  
Maize NCDEX Spot Price (in INR/MT.):**

Location	30-Jun-20	29-May-20
Gulab Bagh	12500	12340
Sangli	15300	-
Erode	16000	-



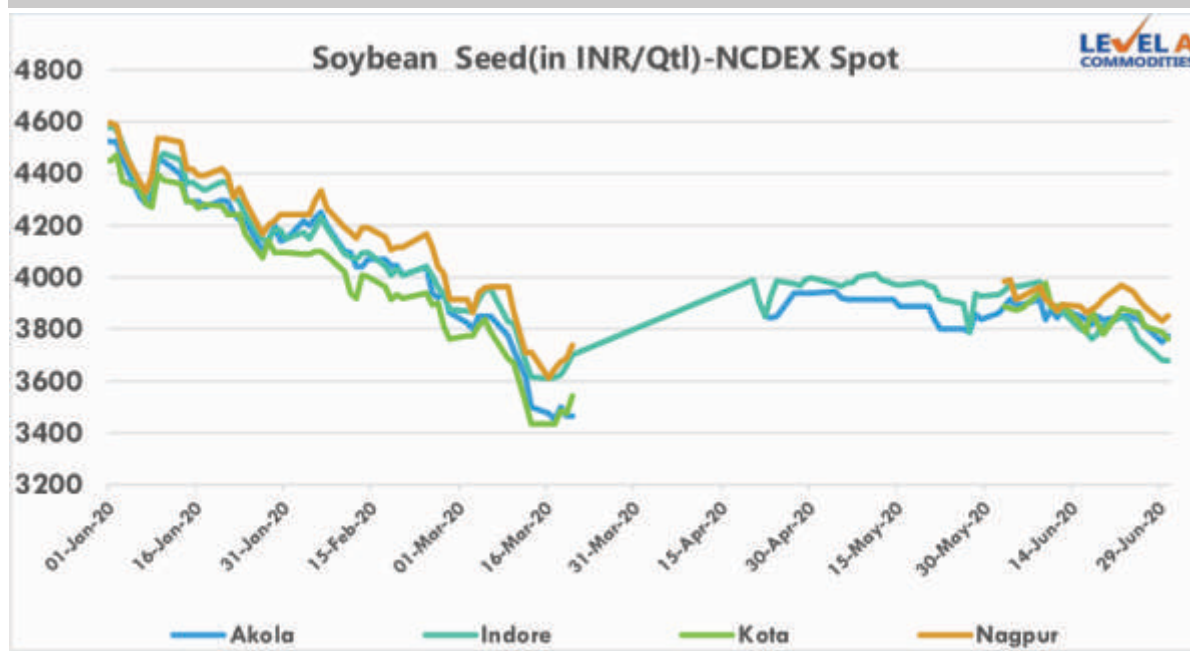
\* Note : Due to Covid-19 prices has not been released from 17.03.2020 to 02.06.2020.



**Soybean:**  
**Soybean Complex Prices-NCDEX Spot:**

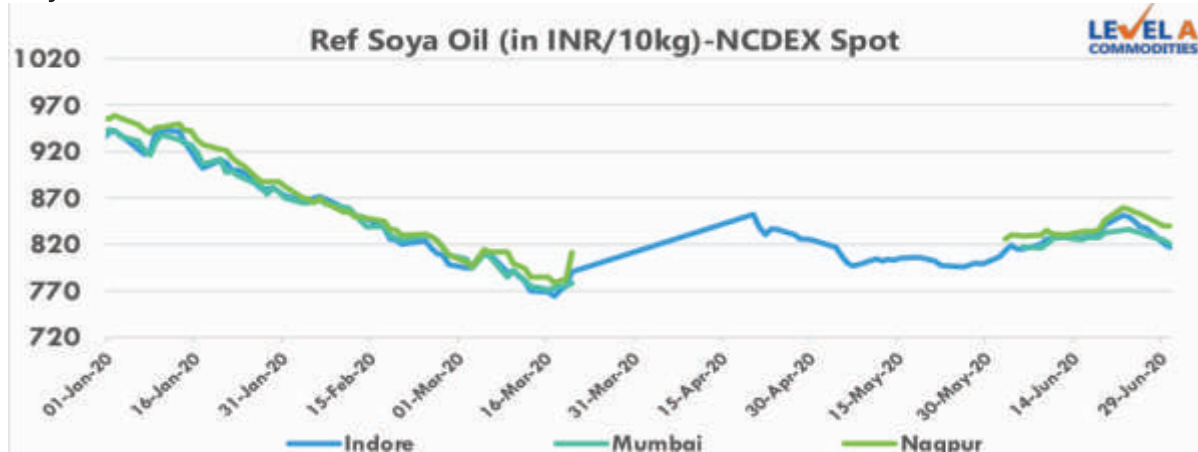
Commodity (Unit)	Location	30-Jun-20	29-May-20
Degummed Soy oil (in INR/10kg)	Kandla	-	-
Ref Soya Oil (in INR/10kg)	Indore	817	799
	Mumbai	821	-
	Nagpur	840	-
Soymeal (in INR/MT)	Indore	29,533	-
Soybean Seed(in INR/Qtl)	Akola	3,775	3,838
	Indore	3,678	3,927
	Kota	3,762	-
	Nagpur	3,851	-

**Soybean Seed**

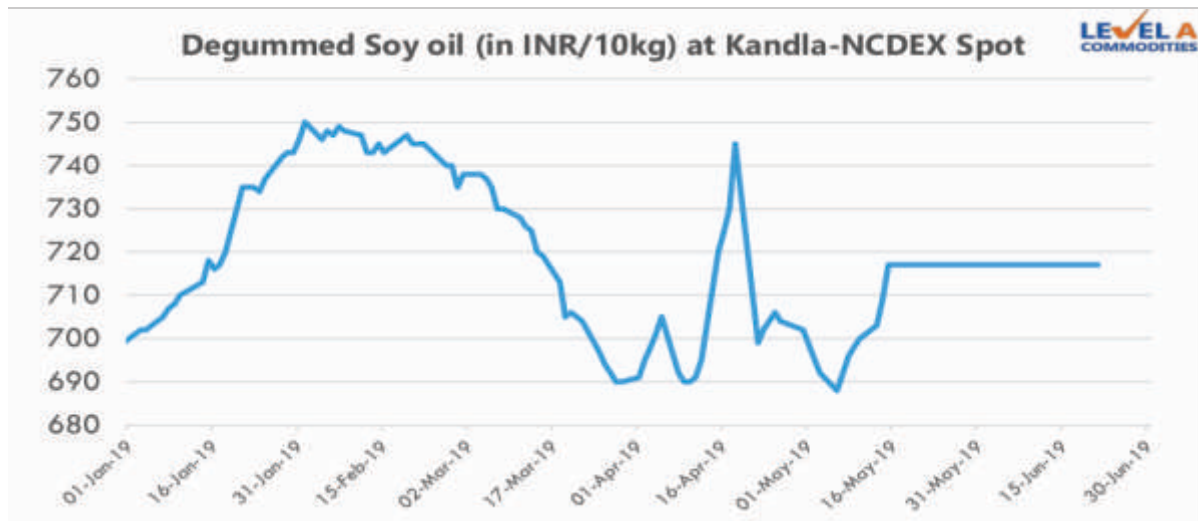


\* Note : Due to Covid-19 prices has not been released from 20.04.2020 to 01.06.2020.

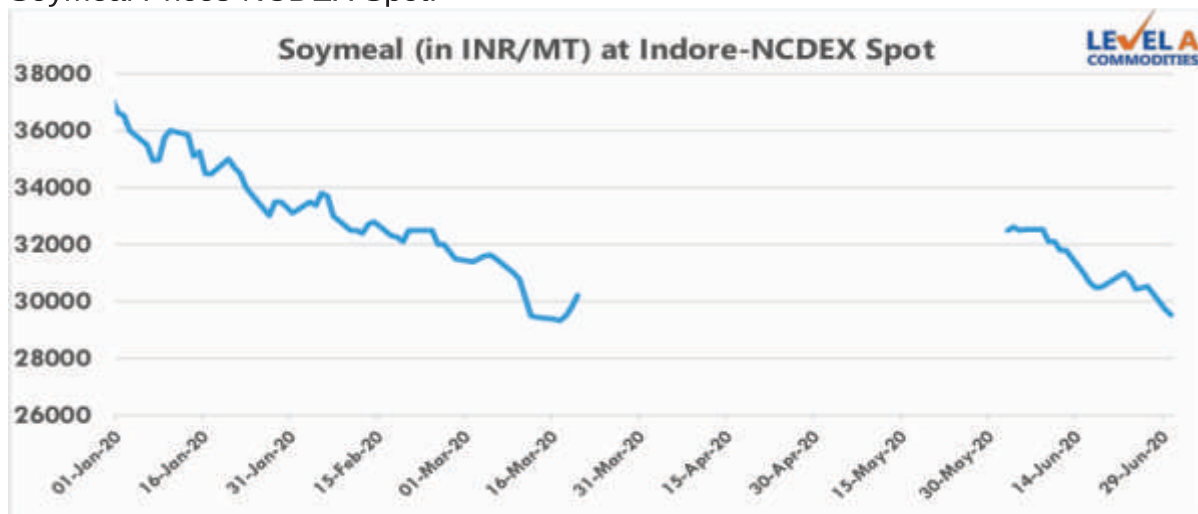
## Soya Oil



\* Note : Due to Covid-19 prices has not been released from 20.04.2020 to 01.06.2020.



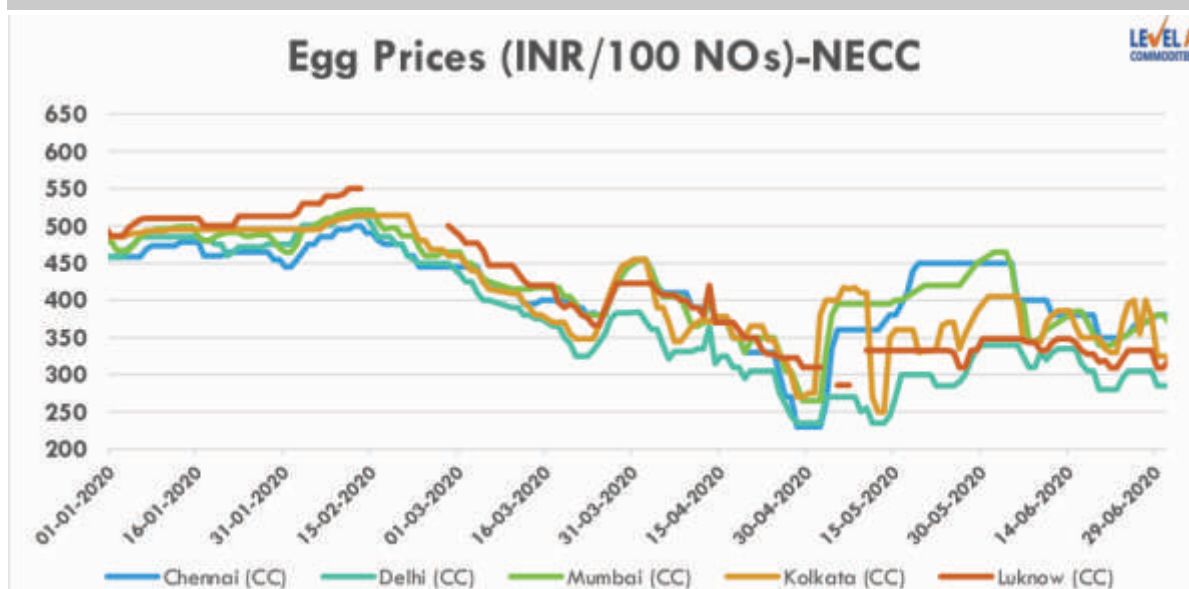
## Soymeal Prices-NCDEX Spot:



\* Note : Due to Covid-19 prices has not been released from 20.04.2020 to 01.06.2020.



## Egg Prices



## Egg Rates

## NECC Prices

Market	30-Jun-20	29-May-20
Ahmedabad	394	347
Ajmer	340	272
Asansole	405	350
Barwala	336	263
Banglore (CC)	370	355
Brahmapur (OD)	365	313
Burdwan (CC)	405	360
Chennai (CC)	380	380
Chittoor	373	373
Delhi (CC)	349	275
E.Godavari	354	310
Hyderabad	346	340
Ludhiana	336	263

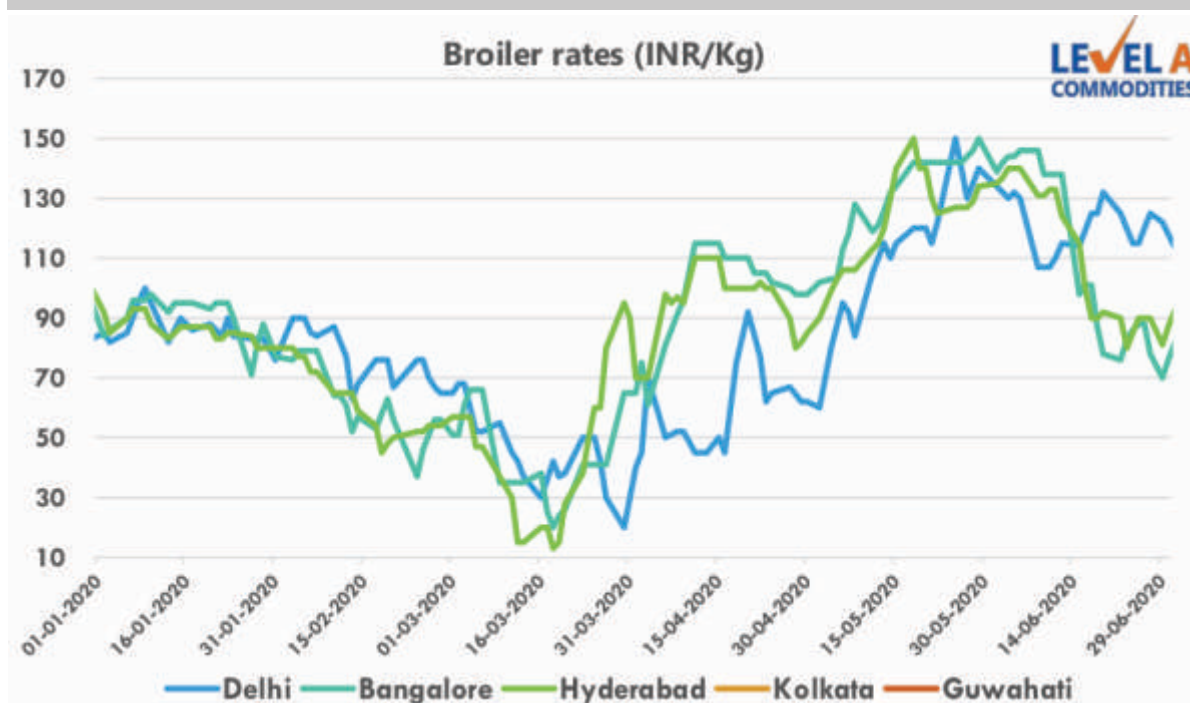
## COMMODITY UPDATES

Midnapur (KOL)	415	360
Mumbai (CC)	399	365
Muzaffarpur (CC)	395	328
Mysuru	375	364
Nagpur	350	303
Namakkal	370	355
Patna	395	314
Pune	395	360
Ranchi(CC)	395	333
Vijayawada	364	310
Vizag	349	350
West Godavari	354	310
Warangal	347	342

### Prevailing Prices

Market	30-Jun-20	29-May-20
Allahabad (CC)	376	305
Bhopal	320	295
Hospet	335	320
Indore(CC)	375	340
Jabalpur	380	324
Kanpur (CC)	371	295
Kolkata (CC)	395	390
Lucknow (CC)	390	319
Raipur	415	345
Surat	412	367
Varanasi (CC)	400	320

## Broiler Rates



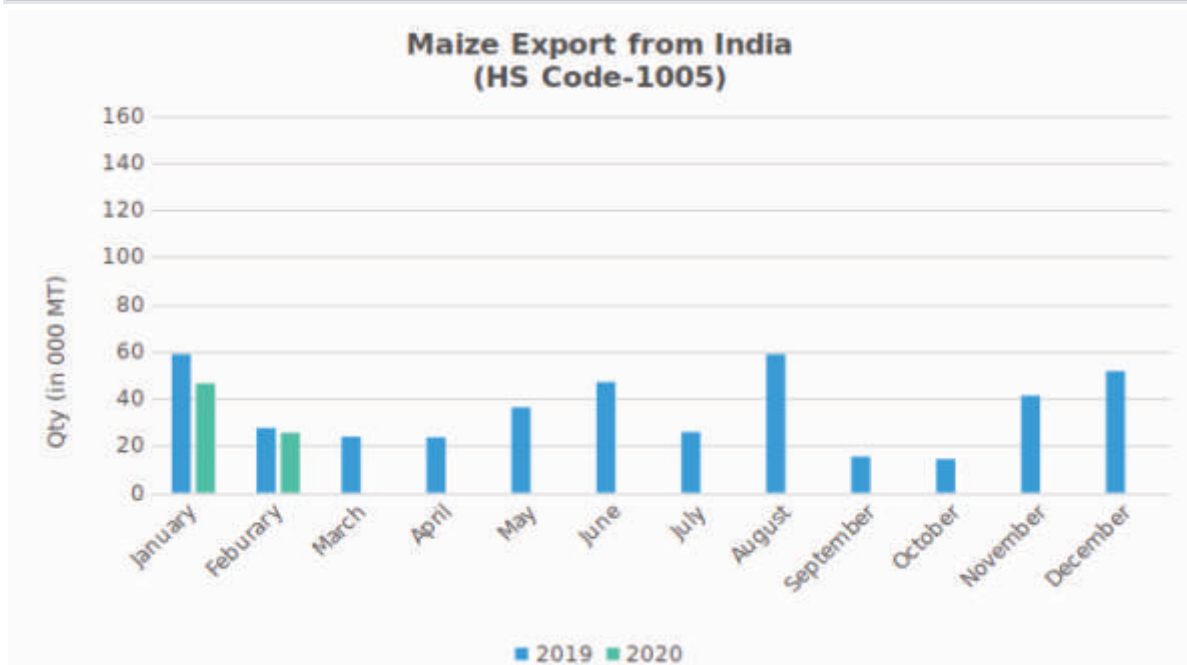
## Broiler rates (INR/Kg)

Market	30-Jun-20	29-May-20
Delhi	-	140
Punjab	127	140
Raipur	95	120
Pune	90	139
Bangalore	76	150
Hyderabad	87	134
Gujarat	103	141
Kolkata	108	135
Lucknow	-	-
Guwahati	-	-

Chicks Price (INR/Unit)		
Market	30-Jun-20	29-May-20
Punjab	19	40
Chandigarh	19	40
Haryana	19	40
Himachal Pradesh	20	41
Rajasthan	20	41
Jammu & Kashmir	20	41
Uttarakhand	20	42
Uttar Pradesh	23	45
Madhya Pradesh	-	-
Chhattisgarh	-	-
Bihar	23	45
Jharkhand	23	45

### Trade Details

#### Maize export from India





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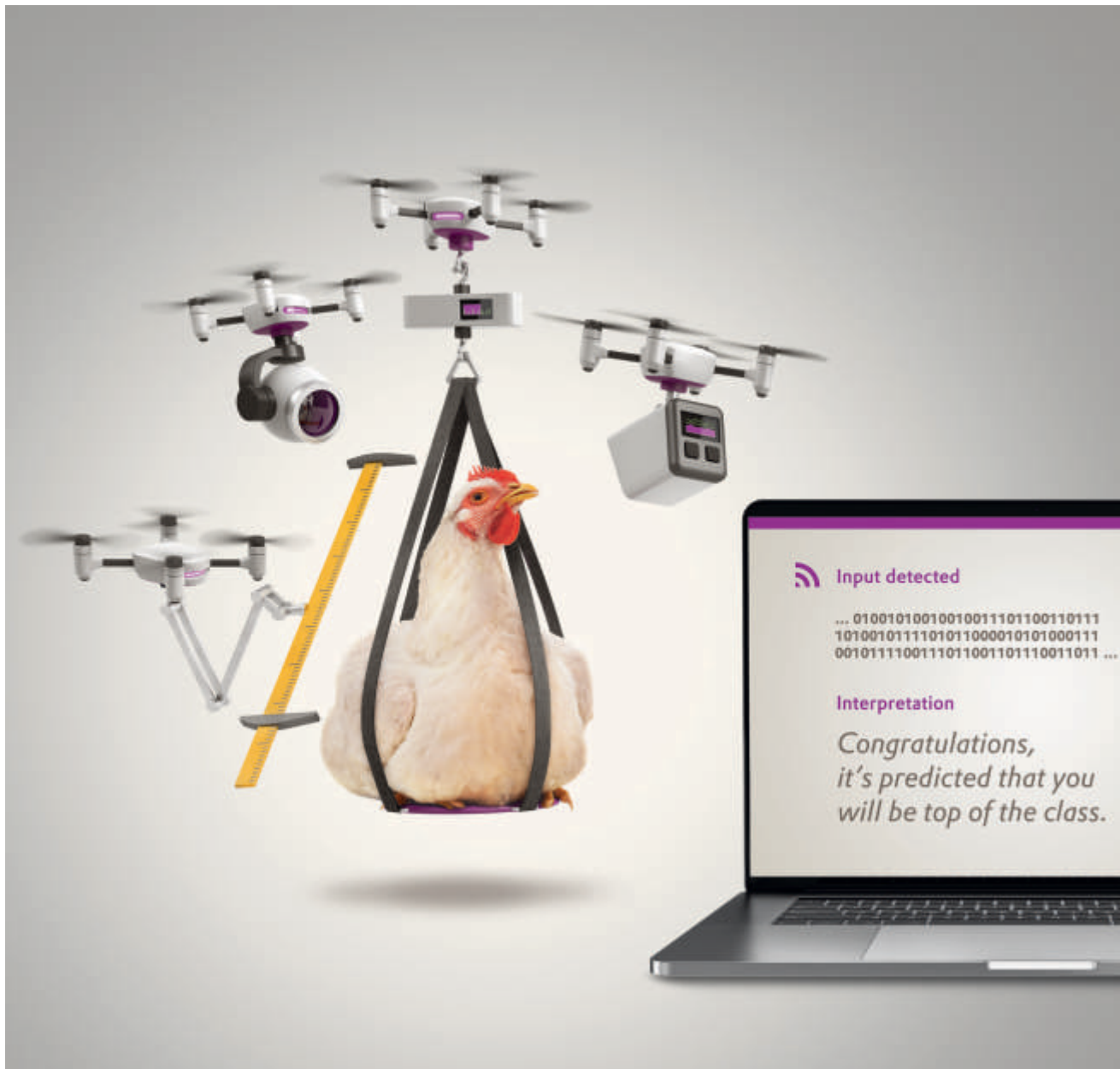
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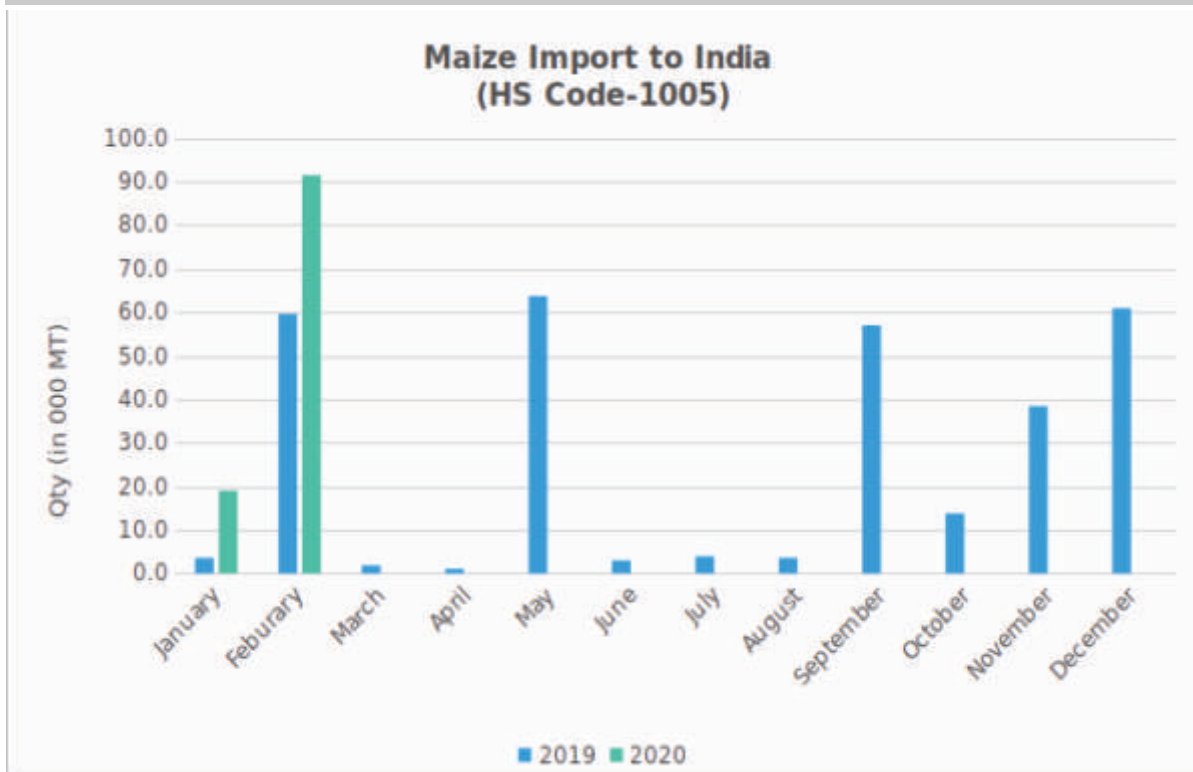
Aflatoxins | Zearalenone-metabolites | Fumonisin | Ochratoxins | A-Trichothecenes  
B-Trichothecenes | Ergot alkaloids | Aspergillus Toxins | Alternaria Toxins  
Fusarium Metabolites | Enniatins and Beauvericin  
Penicillium Toxins

spectrum  
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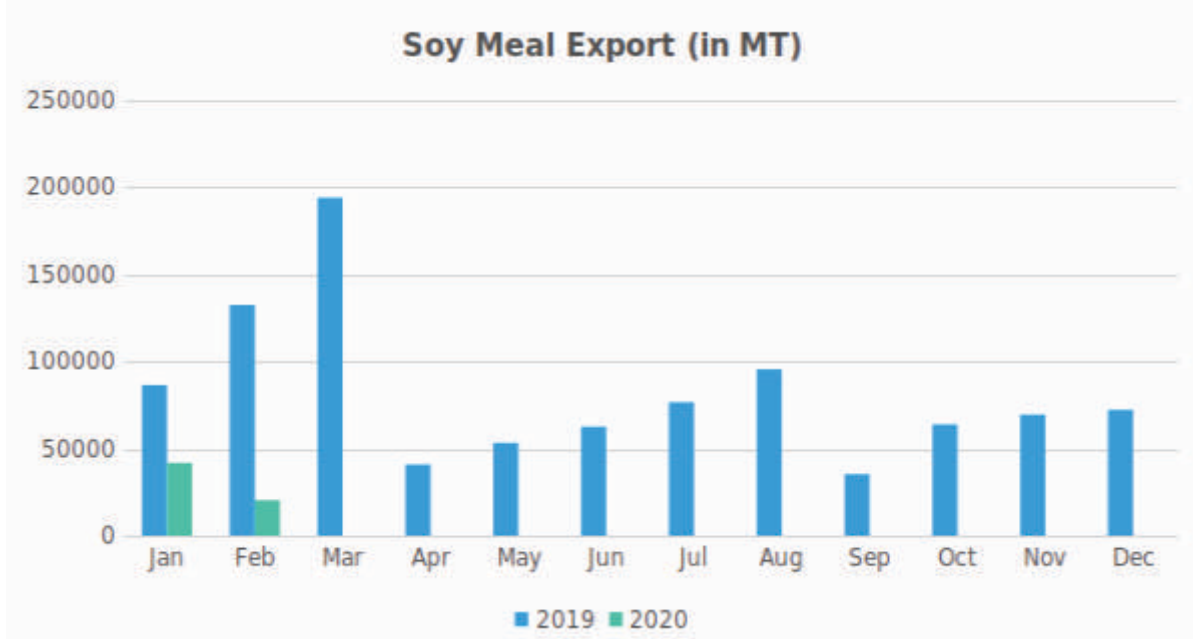
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### Maize import to India



### Soy Meal Export from India(In MT)



## Market Updates

### Maize Domestic

#### **Government clears 5,00,000 tonnes of corn imports at reduced duty to boost poultry sector**

The Central Government has authorised imports of 500,000 tonnes of corn this year at a concessional 15 per cent import tax as it tries to augment supplies of the animal feed for the poultry industry. India, the world's seventh-biggest corn producer, normally imposes a 60 per cent import tax on the grain. The corn imports under the tariff-rate quota (TRQ) were allowed for end-consumers in the poultry and starch supply sectors, the government said in a notification. A major exporter of corn to southeast Asia until a few years ago, India has turned importer as output has fallen and demand has grown from domestic poultry producers and corn starch manufacturers.

India's corn imports in 2019 jumped to 312,389 tonnes in 2019 from 30,962 tonnes a year ago, the Government data showed. India, which does not allow cultivation of any genetically modified food crops, has rules in place to ensure that imports contain no trace of genetically modified organisms. New Delhi also cleared imports of 10,000 tonnes of milk and cream powder for this year at a concessional 15 per cent import tax, the Government notification said. The country also authorised import quotas of 150,000 tonnes each of rapeseed oil and sunflower oil carrying import taxes of 45 per cent and 50 per cent respectively.

India is the world's biggest importer of edible oils. It mainly imports rapeseed/canola oil from Canada and sunflower oil from Ukraine and Russia. But B V Mehta, executive director of the Solvent Extractors' Association (SEA), a Mumbai-based trade body, said Indian refiners may be unlikely to import rapeseed oil and sunflower oil under those tariff-rate quotas as the import tax on regular imports is actually lower, at 35 per cent.

#### **Centre extends Maha's maize procurement target**

The Central government has allowed Maharashtra to procure up to nine lakh quintals of maize and extended the date to do so till July 15, state minister Chhagan Bhujbal said on Wednesday. Earlier, the Centre had allowed the state government to procure 2.50 lakh quintals of maize and 1.50 lakh quintals of jowar till June 30. The state civil supplies minister said the target with regard to maize was achieved in advance and time had come to close the procurement centres. Still some produce was left with farmers and the Maharashtra State Marketing Federation and Adivasi Vikas Mahamandal (tribal development corporation) were demanding the procurement of the same, Bhujbal said. "The state government had urged the Centre to revise the maize procurement targets to nine lakh quintals and extend the deadline



to July 15," he said. The demand has been accepted and all the produce will be procured now, the minister said in a tweet. Meanwhile, Bhujbal said the government had provided over 23 lakh Shiv Bhojan thalis at Rs 5 per plate through 851 centres between June 1 and June 23. More than 81 lakh thalis were distributed from April till June, he added.

#### **Kharif maize area may fall 10% on dwindling demand, low prices**

A sharp fall in prices over the past few months amid a decline in demand from bulk users such as poultry-feed makers is likely to discourage farmers from sowing maize this kharif season, markets participants said. This could lead to an almost 10% fall in maize acreage in this kharif season, they said. Acreage under the coarse grain was at 8.2 mln ha in 2019-20. So far in 2020-21 kharif season, farmers have sown maize over 391,300 ha, up 7% on year. But this trend could reverse, going ahead, as the COVID-19 pandemic has hit demand for poultry sector.

Maize prices have fallen to an over two-year low of 1,250-1,300 rupees per 100 kg in the past few months on weak demand. Although prices recovered marginally to 1,300-1,350 rupees, they are still sharply lower than the Centre-set minimum support price of 1,760 rupees. Rumours on social media that poultry products could be carriers of coronavirus have led to a sharp fall in demand for broilers and eggs, and is seen hitting the prices of maize, a key component of poultry feed, an official with a domestic poultry firm said. "The demand for poultry feed has declined over the last few weeks as retail demand for chicken and eggs has gone down," Niket Chheda, director of P.V. Sons Corn Milling Co, said. A rise in maize output in Bihar, the largest rabi maize grower, in the 2019-20 (Jul-Jun) rabi season is also seen as a reason for the sharp fall in prices of the commodity across key spot markets, Patna-based trader Avinash Kumar said. The rabi maize output in Bihar is seen at 3.5 mln tn, nearly 10% higher on year.

In 2019-20, the total maize crop ± both kharif and rabi output ± has been pegged at 28.98 mln tn compared with 27.72 mln tn in the previous year. The steady decline in prices and demand has led to losses for farmers. "Farmers spend money on preparing the field for sowing, purchasing seeds and fertilizers, labour, water for irrigation, and transport facilities. All this adds up to 40,000 rupees per acre, but we are making only 30,000 rupees in return," Purnea-based trader Manoj Kumar said. Coupled with larger crop, imports have also hit spot prices. Domestic poultry feed makers and starch manufacturers have turned to Myanmar to import maize at zero duty, and have bought over 150,000 tn of the grain during Jan-Mar, industry sources said.

Import deals were signed during Jan-Mar, with maize from Myanmar quoting around 2,000 rupees per 100 kg, compared with the domestic crop which was fetching 2,200 rupees per 100 kg. Usually, India levies 60% duty on import of maize, but imports are duty-free if sourced from 'least developed countries' such as Myanmar. However, with the arrivals of rabi crop kicking

off across the country, the prices of the domestic produce declined sharply. Apart from dwindling demand and low prices, recent recommendations from the Telangana government to limit sowing of maize this season in favour of more lucrative crops, is also seen weighing on the acreage of the crop, a Nizamabad-based trader Amrutlal Kataria said. This assumes significance as Telangana usually accounts for nearly 10% of the overall area for maize in the kharif season. Traders expect maize growers in Telangana to shift to cotton since the fibre fetched better returns last year. Similarly, in other states, farmers may opt for other crops fetching better returns.

In Karnataka, the largest kharif maize growing state, farmers may switch to pulses, and in Madhya Pradesh, another key kharif maize grower, farmers are likely to shift to soybean this year as the oilseed attracted better prices last season. However, traders anticipate a rise in acreage in the north, especially in Punjab and Haryana, since both states are pushing farmers to shift to coarse grains from paddy this season, in a push to conserve water. But any rise in the area under maize may be marginal, traders said. With the decline in the acreage of the kharif maize crop—which accounts for major part of the total output—farmers are keeping fingers crossed for a rebound in prices.

## Maize International

### WASDE:

This month's 2020/21 U.S. corn outlook is little changed from last month, with fractional increases to beginning and ending stocks. Beginning stocks are raised, as a 45-million-bushel reduction in estimated production for 2019/20 is largely offset by a 50-million-bushel reduction in projected corn used for ethanol. Corn used for ethanol is lowered reflecting a slower-than-expected rebound in ethanol production as indicated by Energy Information Administration data during the month of May and into early June. For 2020/21, with supply up slightly and no changes to projected use, ending stocks are 5 million bushels higher at 3.3 billion bushels. The season-average farm price is unchanged at \$3.20 per bushel.

The global coarse grain production forecast for 2020/21 is raised 3.2 million tons to 1,484.6 million. This month's foreign coarse grain outlook is for larger production, increased use, and lower stocks relative to last month. Brazil corn production is raised based on higher expected area. Barley production is raised for the EU, based mostly on a forecast increase for the United Kingdom that is partly offset by a reduction for France. Barley production is raised for Australia, but lowered for Ukraine, India, and Russia. For 2019/20, Brazil corn production is unchanged, as higher indicated area is offset by a reduction in yield. Yield prospects for much of the Center-West are generally favorable in contrast to the South where conditions have been poor.

Major global trade changes for 2020/21 include a larger corn export forecast for Zambia, with increases in corn imports for Thailand and Honduras. Barley exports are lowered for Australia, based on a reduction in projected imports for China. For 2019/20, corn exports are raised for Argentina but lowered for Brazil for the local marketing year beginning March 2020 based on observed data through early June. Foreign corn ending stocks for 2020/21 are lowered from last month, mostly reflecting reductions for China, Argentina, South Africa, and Paraguay that more than offset increases for Brazil and India.

#### Canada Outlook:

**For 2019-20**, the total supply of corn in Canada decreased by 11% as a result of lower carry-in stocks, production and imports. More than 95% of Canadian corn imports are from the US. Corn imports are expected to decrease by 42% throughout the crop year, mainly due to lower demand for industrial use and feed consumption, as well as the depreciation of the Canada/US exchange rate. Total domestic use is expected to decrease due to reduced industrial use and feed use. Corn exports are expected to fall sharply to 350 thousand tonnes (Kt), as exports to the EU have been nil for the first eight months of crop year. As a result, carry-out stocks are anticipated to fall but only slightly. The average price of corn for 2019-20 is expected to close to the level in last year due to lower US corn price being offset by the depreciated Canadian currency.

In the US, demand for corn for ethanol production has decreased significantly due to sharply lower consumption for fuel, as well as the major downturn in energy prices. A part of the decrease in industrial use has been offset by higher feed use. The average on-farm price of corn for 2019-20 in the US is estimated by the USDA at US\$3.60/bu, similar to the preceding year.

World corn production and supplies remained abundant for 2019-20, despite a slight decline from 2018-19, as shown in the world major exporters, including Brazil, Argentina, Russia and Ukraine. World demand for corn is expected to fall particularly due to lower industrial use, in spite of strong demand for feed use. This supply and demand situation is anticipated to pressure corn prices. Import is expected to rise from the world major importing countries while it is anticipated to fall from the EU.

For 2020-21, the area seeded to corn in Canada is forecast at 1.544 million hectares, a record high level. Production is forecast to increase by 10% due to higher yields and area harvested. Imports are expected to fall given expectations for historical high production for corn. Corn supply is projected to increase by 5%. Domestic use is projected to fall by 1% due to lower feed use, despite higher industrial use. Given the increase in domestic supply and the continuous increase in world demand, exports are expected to increase sharply. Carry-out stocks are forecast to rise due to higher supply. The average price of corn in Canada is expected to drop following forecasts for lower corn prices in the US for 2020-21. Canadian currency is expected to depreciate continuously in 2020-21 and therefore support Canadian corn prices.

The USDA projected corn acres in the US for 2020 at 97 million acres, up 8% from 89.7 million acres for 2019 and the highest since 2012. Combined with forecasts for higher area harvested and improved yields, US corn production will increase by 17%, and supplies will increase by 14%. Ending stocks are expected to increase by more than 50%, even with higher total use. The US corn price for 2020-21 is projected at US\$3.20/bu, versus US\$3.60/bu for 2019-20.

At the world level, the USDA forecasts the 2020-21 world corn crop will be the largest ever, and the output in the world major exporters continue to expand. World consumption, including feed use and industrial use, is tentatively seen a fresh peak. Carry-out stocks are set to rise to a three-season high, led by the US. World trade volume is forecast to expand to a record level, owing to ample supplies and lower prices.

#### IGC Report:

The International Grains Council boosted its outlook for 2020/21 ending stocks for a second straight month after increasing again its global wheat, corn and barley production, while keeping its global consumption figure unchanged on last month's update.

Total grain production for the next marketing year is In Karnataka, the largest kharif maize growing state, farmers may switch to pulses, and in Madhya Pradesh, another key kharif maize grower, farmers are likely to shift to soybean this year as the oilseed attracted better prices last season. However, traders anticipate a rise in acreage in the north, especially in Punjab and Haryana, since both states are pushing farmers to shift to coarse grains from paddy this season, in a push to conserve water. But any rise in the area under maize may be marginal, traders said. With the decline in the acreage of the kharif maize crop—which accounts for major part of the total output—farmers are keeping fingers crossed for a rebound in prices. pegged at 2.237 billion mt, up 7 million mt on the month and 62 million mt on last year's figures. The rise in output is led by a jump in corn production to a new record of 1.172 billion mt, up 3 million mt from its May update, while global wheat production was increased by 2 million mt to 768 million mt.

### Soy meal Domestic

#### Soyabean acreage likely to increase this year: SOPA

The soyabean sowing area is estimated to increase by 10 per cent in the country during the current Kharif season and cover around 118 lakh hectares, an association of the crop processors said on Thursday. During the last Kharif season, soyabean was sown in an area of 107.61 lakh hectares and its yield was 93.06 lakh tonnes, Soyabean Processors Association of India executive director D N Pathak told PTI. Heavy rains during the



monsoon last year caused damage this cash crop, he said. "We are estimating that the sowing area of soyabean would increase by 10 per cent during this Kharif season in view of the prevalent conditions," he said. "We feel farmers of Madhya Pradesh, Maharashtra and Rajasthan, who sow maize and cotton, would opt for soyabean cultivation this time for better income. This will increase the acreage of the oilseed crop," he said.

Following the onset of the southwest monsoon this year, farmers have started sowing soyabean in Madhya Pradesh and other places, Pathak said, adding that the sowing is expected to end by the first week of July.

#### **Oilmeal exports surge 23% in May**

India recorded a 23-per cent rise in oilmeal exports in May, as compared to the same month last year. As per provisional data compiled by the Solvent Extractors' Association of India (SEA), export of oilmeals in May is reported at 2,47,879 tonnes as compared to 2,01,768 tonnes in May 2019. The rise in exports is attributed to the sharp increase in rapeseed meal exports at 1,44,244 tonnes, nearly double from 72,895 tonnes recorded in May 2019. The overall export of oilmeals during the first two months of this fiscal • April and May • provisionally stood at 3,49,880 tonnes, about 23 per cent lower as compared to 4,56,353 tonnes in the corresponding period last year. Data showed that during the two months under review, oilmeal exports to key markets had reported a decline. Indian oilmeal imports by Thailand dipped by over 81 per cent to 12,316 tonnes for April-May as against 65,584 tonnes in the same period last year.

South Korea imported 16 per cent less oilmeal at 1,45,772 tonnes as compared to 1,73,475 tonnes, while Vietnam imported 85,092 tonnes of oilmeals, about 18 per cent lower than the 71,829 tonnes it did last year. Oilmeal exports to the US also fell to 28,217 tonnes from 33,092 tonnes in the same period in the previous year. Notably, export of rice bran extracts increased to 69,895 tonnes during the period, as against 50,580 tonnes reported last year. Soybean meal exports were recorded at 72,554 tonnes for the period, as against 94,101 tonnes in the same months last year. Castor seed meal exports plunged heavily from 1,18,056 tonnes in April-May 2019 to 41,694 tonnes in April-May 2020.

#### **SOPA seeks restrictions on edible oil imports**

The Soyabean Processors Association of India (SOPA) has sought additional reforms in the edible oil sector, following those announced by the government. Davish Jain, chairman, SOPA said that the government's move to encourage contract farming will lead to a lot of corporate interest in the farm sector. Now, farmers can combine to farm large tracts and can work to provide specific crop to corporate on wages while retaining their land ownership, he said. He felt that the near elimination of APMCs or mandis

logically led to abolishing the Mandi Fee (Tax) a very welcome reform which was also a burden on the poor farmer. Removal of GST on agri produce as available to food grains and pulses needs to be extended to the deficit area of indigenously produced oil seeds, he said.

Jain advocated similar reforms in the oil seed sector to make the country self-sufficient in edible oils, more specifically considering the fact that soyabean farming and processing sector has been at the mercy of the rain gods and imports. Our export markets were limited to a small quantity, he pointed out. The government should impose restrictions on edible oil imports so as to balance the need-based supply. "We need to incentivise export of the oilmeals so that the industry retains viability and contributes to forex earnings," he said. The processors are hoping for hike in the customs duty on edible oils by 10% to support domestic oil industry and encourage farmers to opt for oil seeds. This must be done if we have to build self-reliance, and most imports are likely to be taxed by the government, Jain said.

He suggested that MSP should be replaced by a more equitable acreage and yield based pricing in other words the Bhawantar scheme. Reforms such as these have led small countries like Israel take lead in the agriculture space, he pointed out. "Soya processing is an important industry as it crushes the highest grown oil seed crop in India with more than 50 lakh dependent farmers. Soyabean meal is essential ingredient of poultry feed industry, giving employment to millions of people across India," he said. The industry has been fighting for survival because of low productivity, under utilisation of capacity and lack of export market, he asserted.

Jain said that Covid-19 has affected the poultry and soya industry very badly, adding that there is great anxiety about the revival prospects and outlook for poultry and soyabean processing industry. Soyabean is the primary oil seed grown in India and accounts for 30% of the country's oil seed basket. India's edible oil imports were at 145 lakh tonne in 2017-18 (November-October). India is the world's largest importer of edible oil.

### Soy meal International

#### WASDE:

This month's U.S. soybean supply and use projections for 2020/21 include higher beginning stocks, higher crush, and slightly lower ending stocks. Beginning stocks are raised 5 million bushels with higher crush for 2019/20 more-than-offset with lower production and a lower export forecast. Lower 2019 production reflects the latest re-survey by NASS for North Dakota. The 2019/20 soybean crush is raised 15 million bushels reflecting increased domestic soybean meal use. Soybean exports are reduced 25 million bushels on increased competition from South America. Increased beginning stocks for 2020/21 are more than offset with a higher soybean crush forecast, which is

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raised along with increased domestic soybean meal use. With higher soybean crush more than offsetting higher beginning stocks, 2020/21 ending stocks are projected at 395 million bushels. The 2020/21 season-average soybean and product price forecasts are unchanged this month.

The 2020/21 global oilseed supply and demand forecasts include slightly higher production and lower ending stocks compared to last month. Higher peanut, soybean, and sunflowerseed production is partly offset by lower cottonseed output. A notable revision to production is for EU canola, lowered 0.2 million tons to 16.8 million, based largely on lower yields for Germany. The EU revision is offset by higher Australian canola production. The 2020/21 soybean ending stocks are lowered 2.1 million tons to 96.3 million, mainly reflecting lower carryin due to revisions to 2019/20 balance sheets. For 2019/20, soybean exports are increased 1 million tons each for Argentina and Brazil based on the recent pace of shipments and reflect increased crush demand and imports for China. Partly offsetting is reduced 2019/20 U.S. exports. These revisions result in higher stocks for China and lower stocks for South America.

#### **Canada Outlook:**

**For 2019-20**, supplies are estimated at 7.1 Mt, down from last year's 9.2 Mt on sharply lower production and imports. Canadian exports are forecast to decline to 4.3Mt, versus 5.6 Mt last year on tighter domestic supplies and competition from large US and South American supplies. Canadian soybean crush is expected to fall by 13%, to 1.8 Mt. Carry-out stocks are estimated at 0.3 Mt, while soybean prices are forecast to rise slightly to \$400-430/t versus \$406/t for 2018-19.

#### **The factors to watch are:**

- (1) Canadian and US crop conditions
- (2) US soybean export sales
- (3) South American soybean export pace, and
- (4) the spillover impact of lower corn prices on soymeal values

For 2020-21, Statistics Canada says farmers intend to plant 2.11 Mha to soybeans, based on producer surveys. This is a 0.2 Mha drop from last year due to a combination of steady prices, a series of difficult harvests and uncertainty over revenues. Production is forecast at 6.1 Mt, vs 6.0 Mt in 2019-20 and 7.4 Mt in 2018-19, assuming five-year average yields. The forecasts for near normal yields are supported by the normal planting pace, reports of near normal crop developments, with emergence problems reported in a few regions, and forecasts for normal moisture and normal to cooler-than normal temperatures for much of the growing regions.

Total supply is forecast to decrease slightly, to 6.9 Mt, as the sharp drop in carry-in stocks more than offsets the slight rise in production and imports. Exports are forecast at 4.2 Mt and are expected to head to a number of countries. Domestic processing is forecast up slightly at 1.9 Mt as crushers swing back to processing soybeans at a normal pace. Carry-out stocks are forecast at 0.30 Mt unchanged from the 0.30 Mt for 2019-20 and down from the 0.70 Mt carried out in 2018-19. Soybean prices are forecast to from \$385-425/t on support from stronger US prices with gains muted by a projected appreciation of the Canadian dollar against its American counterpart.

#### IGC Report:

The soybean production outlook for 2020/21 was lifted again on the back of a "nominal increase for Brazil" to 364 million mt, up 8% on the year and at a record high.

Global consumption for the oilseed was held flat on the month at 363 million mt, allowing for ending stocks for the 2020/21 marketing year to climb 3 million mt on the month to 45 million mt, marginally ahead of the year.

"Given assumed firm import demand from China, world [soybean] trade is placed at a peak of 160 million mt," the IGC said, about 1 million mt higher than where they had it last month.

## Market Drivers

### Maize

Market Drivers	Monthly Outlook
Prices of the coarse grain are likely to fall further in coming day due to an anticipated weak demand and a surge in area under the kharif crop	Bullish
Steady to weak sentiments reported in most of the markets of maize during the month of June'20	Bullish
Demand from poultry feed industry	Bullish

## Soymeal

Market Drivers	Monthly Outlook
Soybean prices will feature range-bound movement with weak bias in near terms	Bullish
Demand from poultry sector and overseas demand	Bearish
According to USDA, Global oilseed production for 2020/21 is projected higher	Bullish

**Disclaimer:** The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavour to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

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***CLFMA WEBINAR***  
***“Livestock Industry Post COVID”***  
***Date: May 24, 2020***  
***Venue: Virtual***

**REPORT**

CLFMA OF INDIA conducted a Webinar and has brought about the report consisting of the details of deliberations and outcomes of the Webinar.

**Presented by:**

S. V. Bhawe, Chairman, CLFMA OF INDIA



## ACKNOWLEDGEMENTS

*We are grateful to the Ministry of Fisheries, Animal Husbandry & Dairying, Government of India, for extending their valuable support in advising about the Livestock Industry taking corrective action in a post COVID 19 crisis scenario*

*We are highly indebted to Shri. Tarun Shridhar, IAS(Retd.), Former Secretary AH & D for moderating the webinar successfully.*

*We express sincere thanks to our panellists Shri. Sagar Mehra, Joint Secretary (Inland Fisheries), Dept. of Fisheries, Shri. O. P. Chaudhary, Joint Secretary (NLM), Dept. of National Livestock Mission, Dr. Sujit K. Dutta, Deputy Commissioner (NLM), Shri. Chinmoyjit Sen, Deputy Commissioner (Dairy Development) and Mr. Vijay Thakre (Fodder Agronomist), Assistant Commissioner (Feed & Fodder), Feed & Fodder Unit (NLM Division) for giving their valuable time and guidance to overcome this unprecedented crisis.*

*Around 350 industry participants participated in the webinar and we are also thankful to the participants for their queries that enabled clarity and insights from the panellists.*



# Livestock Industry Post COVID REPORT

## INTRODUCTION

CLFMA of India, the apex organization and the voice of the country's dynamic livestock sector conducted the webinar "Livestock Industry Post COVID" on May 24, 2020. This event was focused in interacting with the Ministry of Fisheries, Animal Husbandry & Dairying, Government of India to overcome the COVID 19 Crisis in the Livestock Sector.

**The Webinar was moderated by Shri. Tarun Shridhar, IAS(Retd.), Former Secretary AH & D. The panellists of the webinar were Shri. Sagar Mehra, Joint Secretary (Inland Fisheries), Dept. of Fisheries, Shri. O. P. Chaudhary, Joint Secretary (NLM), Dept. of National Livestock Mission, Dr. Sujit K. Dutta, Deputy Commissioner (NLM), Dept. of National Livestock Mission, Shri. Chinmoyjit Sen, Deputy Commissioner (Dairy Development), Dept. of Animal Husbandry & Dairying and Mr. Vijay Thakre (Fodder Agronomist), Assistant Commissioner (Feed & Fodder), Feed & Fodder Unit (NLM Division)**

The webinar started with a welcome address by Mr. S. V. Bhave, Chairman, CLFMA OF INDIA, he said that the present livestock business dynamics have changed and it has incurred huge losses due to COVID 19, the businesses were started with very limited resources and too many uncertainties and hence CLFMA had organized the webinar to address these issues

Mr. Tarun Shridhar thanked CLFMA Chairman Mr. S. V. Bhave and welcomed all panellists and participants and said that this webinar has been organized at a very short notice because of the unique crisis being faced by the entire global community and it was essential to discuss issues which are of concern to all the stake holders of the livestock industry.

**He said that, the main objective of this webinar is to enable the livestock industry stake holders to understand the plans and way forward of the government to tackle the crisis.** He thanked all the panellists from the ministry for their support.

## Discussion Details:

### **A. Financial Stimulus Packages for the Livestock Sector:**

#### **1. Financial Stimulus Package Announced by Government for Livestock Sector Revival (Poultry, Dairy, Meat Processing, Feed) from COVID 19 Crisis and future growth:**

This section was addressed by **Shri. O. P. Chaudhary**, Joint Secretary (NLM), Dept. of National Livestock Mission.

1.1 He said that earlier there was a scheme launched by National Animal Disease Control Programme(NADCP) for control and eradication of FMD and this continues to be included as the major part of the package, **but he enumerated the importance of the CORPUS of 15,000 crores which is available and said that the Expenditure Finance Commission(EFC) has already been completed for this.**

1.1.1 There are Major 3 components involved in the CORPUS of 15,000 crores (National Animal Husbandry Infrastructure Development Fund) are Dairy processing and the diversification of its products.

1.1.2 Establishment of Feed Plants and

1.1.3 Meat processing and diversification of products in all the categories.

1.2 The 15,000 Corpus will be an Interest subvention scheme of 3% and through the schedule Banks it will be given to Industry entrepreneurs, individuals. So, for the private sector these 15,000 crores are going to be a huge stimulus to revive the industry.

1.3 The Poultry Sector crisis is also being discussed in the government as it has faced huge challenges and it is covered under 3 components viz :

1.3.1 Restructuring of Loans.

1.3.2 Provisions for making Working Capital Availability.

1.3.3 Interest subvention for Poultry Sector.

1.4 **Specific Features of the Animal Husbandry Infrastructure Development Fund, processes to access these funds, details of activities which will qualify and availability of any specific provisions for COVID 19 :**

1.4.1 The special features are as given in point no 1.2 above and these are the 3 components for which the interest subvention is given through the schedule banks.

1.4.2 The process has been eased for the benefit of the beneficiaries and it is driven by the AHD Department directly and NABARD is not involved in this and the government has set up a portal and through the portal the beneficiaries can assess and apply to the banks and banks will send the same to AHD for sanction and once it is approved at the level of the secretary ,the money will be sent upfront to the bank.

## 2. Financial Stimulus Package Announced for Fisheries Sector

This section was addressed by Shri. Sagar Mehra, Joint Secretary (Inland Fisheries), Dept. of Fisheries.

**2.1 Matsya Sampada Yojana (Rs.20000 Crores), prominent features and activities covered under this 20,050 Crore package and specifically how it is different from the Blue**

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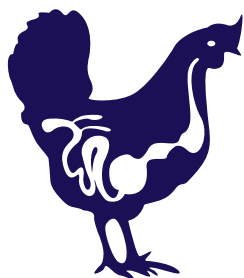
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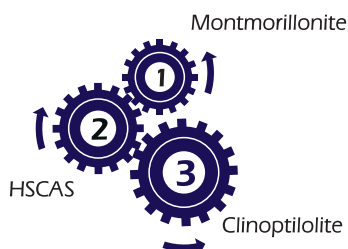
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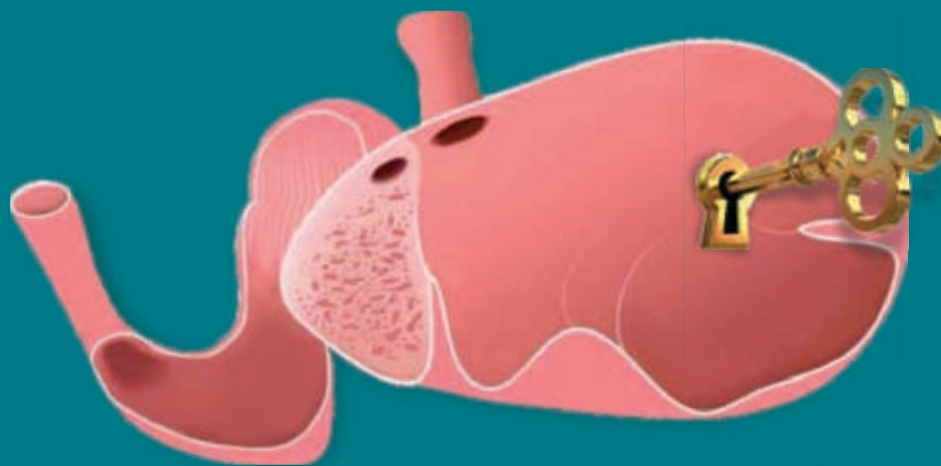


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- 2.1.1 This scheme has highest ever investment of GOI i.e. INR. 20,050 Crores. This envisages that, there would be additional production of fish of 70 Lakh Tonnes by the year 2024-25 there would be fisheries export of up to Rs.1lakh Crores.
- 2.1.2 The employment generation opportunities would be up to a tune of 55 to 60 lakh and the scheme envisages that INR 11,000 crores will be invested in beneficiary related activities, INR Rs.9,000 crores would be invested in fisheries infrastructure.
- 2.1.3 It would be a consolidation of gains which was obtained during the Blue Revolution scheme and to take it forward it looks for the transformation of management and regulatory framework specially related to sustainability, traceability, quality, hygiene of fish and fishery products, Fish disease risk management, adoption of resource efficient good farm management practises and genetic resource management to enhance production and productivity, creation of appropriate aquaculture and fisheries extension network, leveraging private sector & commercial bank compliances to compliment the government budgetary resources.
- 2.1.4 In earlier Blue Revolution scheme, it was lump sum allocation but under Pradhan Mantri Matsya Sampada Yojana for each activity there is specific year marked allocation with annual physical target.
- 2.1.5 New Scheme has the benefit to know about the yearly utilization of the funds in areas viz aquaculture, Marine, technology infusion etc.
- 2.1.6 There are few focus areas like reservoir and marine cage culture, sea weed cultivation, technology infusion, post-harvest and cold chain, ornamental fisheries, deep sea fishing, brood bank, hatcheries, laboratory Network, disease monitoring and Residue Control, Nucleus Breeding Centre.
- 2.1.7 Blue revolution did not address the concept of extension for large-scale fisheries, so in present scheme the government is coming up with the integrated fisheries coastal villages with all the requisite infrastructure for sustainable development, which will have Sagar Mitras and Aqua parks.
- 2.1.8 Under the scheme there will be six aqua parks in different parts of the Country which will be theme specific and species specific.
- 2.1.9 The government in a big way is promoting the private participants in the different capital-intensive projects.
- 2.1.10 Regarding risk management of farms, vessel insurance was not covered., Presently the government wants to introduce vessel insurance and enhance the compensation of the personal insurance and the support during the fishing ban period should continue and all necessary equipment which can help farmers in saving the resources when they are on the fishing expeditions.
- 2.1.11 Unlike in blue revolution there are also other few focus areas like Ornamental Fisheries and in Technology Infusion viz. Recirculating Aquaculture Systems (RAS), Biofloc Culture, Reservoir Cage Culture, would be taken up on a war front scale, so that the government is

able to harness the resources in a sustainable and responsible manner, while enhancing production and productivity.

## **2.2 The Matsya Sampada Yojana additional fish production (70 lakh tonnes over the next 5 years.) Input Management viz. (Brood Stock, Feed, Seed) & Handling of Final Produce:**

- 2.2.1 The DOF is in the process of planning and examining every aspect of entire value chain minutely, starting from the getting the brood in place, details of production of the produce at the farm gate, Method of Handling the produce, Method of processing and ways of marketing.
- 2.2.2 Also, assessment of quantity of Resources from Reservoir, Aquaculture, RAS, Mari culture is being carried out.
- 2.2.3 Assessment of quality & quantity of inputs like seed, feed, present status of No. of hatcheries, Plan for upgradation of hatcheries and starting of new hatcheries are also being carried out.

## **2.3 Government Special Packages for the Poultry Sector within 15,000 Crores of Animal Husbandry Infrastructure Development Fund for the revival and support of the Backyard and Commercial Poultry Farms and entire production and supply chain of Poultry:**

This section was addressed by **Dr. Sujit K. Dutta, Deputy Commissioner (NLM), Dept. of National Livestock Mission.**

- 2.3.1 For the last 1.5 years the poultry sector has been facing crisis, initially before COVID 19 the poultry sector suffered due to high feed cost and the farmers did not get the right remuneration, after which the chicken consumption dropped due the rumours of spread of Corona Virus by consumption of chicken. The prices of chicken and egg dropped drastically to Rs. 10 to Rs.15 per kg and Rs 1 to 2 per unit respectively.
- 2.3.2 Government is trying to address the problem of working capital availability, deferment of EMI, grace period and moratorium for payment of existing term loan.
- 2.3.3 The government had initially allowed the deferment of EMI by 3 months and has presently extended it upto 6 months.
- 2.3.4 The finance ministry might consider providing interest subvention not only for poultry but for all the livestock sectors.
- 2.3.5 The backyard poultry has win-win situation because of the white bird versus the coloured bird. The White bird business suffered the most when compared to that of the colour bird.
- 2.3.6 The AHD is revising the National Livestock Mission Scheme and are trying to built up the rural backyard poultry in an organized way to encourage the shift.
- 2.3.7 from the Commercial Poultry to the rural backyard poultry and produce coloured Broilers.
- 2.3.8 The Animal Husbandry Infra Structure Development Fund , the government has not made any proposal for direct farming activities for interest subvention ,what has been proposed



is that in future the poultry business have to change their systems of operations ,presently the process is that, the big poultry players take the farmers into the integrated mode and after raising the birds to certain age groups they are sold directly to the market and

- 2.3.9 95% of our poultry is wet market and there is no processing happening and the processing is hardly 5% and that too 2.5 % for the direct chicken products and frozen products and less than 2% is for the value added product ,and presently the industry has to change the system of production to processing based model (ie) they should produce the products in the places which has processing facility and market the produce through their own chain .
- 2.3.10 The demand for the poultry meat can be increased only if the industry will produce hygienic poultry processed meat at least for the urban population and when processed poultry meat is produced then situations like COVID 19 Crisis can be avoided.
- 2.3.11 Incentivising the processing facilities like large poultry integrated processing plants along with various product diversification.
- 2.3.12 There is a shortage of animal feed in our country, so the govt is proposing loan with interest subvention for setting up animal feed plants.
- 2.3.13 The government is encouraging to boost the private sector economy, by promoting the processing and value addition chain for the poultry sector.
- 2.3.14 The government is trying to do the backward and forward linkage, which is important for the entire development of the Animal Husbandry Industry.
- 2.3.15 As per FSSAI every product should be processed in a hygienic area and there should be no road side slaughtering.

## **B) Projections of The Production For Year 2020-21 Before Covid 19 and Post Covid, Its Integrity and Value Of The Production Estimates For The Year 2020-21. Current Projections for the purpose of Input planning for Fisheries Sector:**

- 1.1 Mr. Sagar Mehra said, if we look at the production figures of 18-19, we have already reached 13.8 MMT. Our target for 19-20 was 15 MMT, so if we go by the growth trend so far, if we look at the last 5 years it is more than 7 ½ % and we are very much sure that, we will achieve that target of 150 Lakh tonne of Blue revolution,
- 1.2 As far as the scenario of Covid is concerned, we are trying our best to ensure that the brood stock especially for the shrimps, the imports are happening as usual. Whatever measures from government side we could do like extension of SIP validity, extension of registration of hatcheries, booking of EQF facility everything the government is trying their best.
- 1.3 In the wake of covid especially in the month of April & May as this is the stocking time and because of some restrictions in some areas on workers and material was there but The Government is hoping to grow with normal rate of 7½ % and under PMMSY they are targeting annual growth rate of 9%.
- 1.4 Mr. Tarun Shridhar said that, it is very encouraging statement from the fisheries department, but the department of fisheries needs to revisit this entire situation and review, because of losing out



on the stocking in many places all across the country.

- 1.5 There is also a situation where, the product did not have the market as, the farmers did not have the liquidity to go in for fresh stocking, and shrimp is only one part and we are going to lose one season which means we are likely to lose half of the annual production target in shrimps and in terms of fresh water aqua culture the stocking season, the availability of seed, availability of working capital etc, should be looked upon in a very pragmatic manner and realistic views.
- 1.6 Sustaining the present levels of production without any growth can be one of the strategies to arrest the negative trends because along with this, various planning for the inputs is going to happen and this goes into the production and further supply chain.
- 1.7 Mr. Sagar Mehra said that, there are many challenges way forward, but the DOF is an independent department now and has focused attention and they have better liaisoning with all the states and stakeholders.
- 1.8 Mr. Mehra said that, the challenges can be handled with the new infusion of capital through the new scheme, and another scheme, which is world bank assisted project is also under the very advanced stage of consideration under the Ministry of Finance and simultaneously FIBF has also taken off.
- 1.9 Already project of Rs.2000 Crores has been approved and Rs.5000 crores project is also in the pipeline.

### **C) Feed & Fodder Scenario:**

#### **1. Feed and Fodder Industry and requirements for the Livestock. Their Growth trends, Quality, Pricing & Demand:**

Mr. Vijay Thakre said that, the Finance Minister announced MNREGA to develop the fodder farms, which is one of the major achievements in the fodder sector wherein, the ministry of rural development will develop the fodder farms and the dept. has also laid the guidelines for the rural developments.

- 1.2 AHIDO under this EFC has been drafted and there is a provision for the establishment of feed plant. It may be mini, small and medium size for the PMR Development, by-pass protein etc so that focus can be given to better quality feed and feed testing facilities.
- 1.3 Government has realised the importance of this sector and they are focusing more on this as, 60% to 70% of the expenditure is on feed, at present the cost of the feed is more. So, there is need to create the awareness that, in the consumption of the livestock products like eggs, meat there is a direct link (ie) whatever the farmer produces as raw material will go as the animal feed and further to the retailers as produce like egg, chicken etc in the value chain. We need to create awareness amongst the consumers for this activity as Supply chain has been broken and it needs to be revived.

#### **2. Specific Schemes & Incentives which are available for establishment of Feed Mills:**

- 2.1 Mr. Vijay Thakre said that, under National Livestock Mission, under feed and fodder development provision of Rs.2 Crores is available for establishment of feed mills and feed labs. A private entrepreneur can get a maximum subsidy of 2 crores.

## **D) Strategies for handling Dairy, Poultry, Feed & Fodder:**

### **1. The strategies to manage the dairy products as Milk and Dairy is the biggest items in terms of the livestock:**

1.1. Dr O P Chaudhary said that the working capital of the co-operatives including the private sector is getting blocked due to SMP and because they already have the stock of SMP so it is difficult to pass on the per litre earlier cost to the farmers. Hence, department is now in the process of formulating a scheme which can help them to give more working capital so that a breathing time for this SMP is created and after 3 to 4 months this scenario will ease out.

### **2. Shri Tarun Shridhar said that the Industry is worrying about the handling the product. Here the demand has very sharply fallen in Livestock product and the entire development and growth strategy had been production focused (ie) increase productivity and production Is there a strategy to handle this situation?**

2.1 Dr O. P. Chaudhary said, Poultry is either integrator model and backyard poultry and the latter mostly functions in unorganized manner. The organized Sector Milk is also 40%. So, there is ability to bounce back.

2.2. He said that, the two sector Poultry and Dairy will bounce back in another 3 to 4 months or in a year and things will settle down and internal market purchasing power will also come up so that demand will be generated.

2.3. Post COVID poultry was having growth of 8 to 10%. The growth rate may come down in terms of milk but within 6-8 months things will get stabilized.

### **3. Strategies/Steps for the Poultry Sector Scenario to bounce back:**

3.1. This Industry should change their way of operation for the poultry sector to sustain.

3.2. Industry has to look for the overseas market to earn their capital and come up with the money. Mr. Dutta cited the example of US Industry and their sustenance.

3.3. He was of the opinion that, government should create an environment and increase production and this has to be processed and the processing sector has to be taken care by the Industry itself and the poultry farmers should create their own marketing channels.

3.4. Our poultry farmers should reform themselves so that, sustainable production can take place.

3.5. The government is also trying hard to make available the grains at low cost so that production cost may go down and the farmers can earn profit.

3.6. He said that, there is an over production within the industry and as on date 50 crores chicks are placed and this is in excess, we suggest the industry has to assess the market and do the placements so that always there is demand in the market. Many farmers during the COVID crisis have destroyed the live chicken and eggs, and said that no government will support such situation and advised that the industry should work in a very structured manner.

### **4. Reasons for the high cost of production of Feed and Governments thoughts about this and Support of Regional Fodder Centres to the Livestock Sector in terms of better quality of feed and fodder.**

- 4.1. The important factor is the ingredients and Poultry Industry is mainly focused on the Maize and Soya meal. The cost of these ingredients is found to be very volatile. At one end its cost is higher and on another end its cost is lower. There is volatility in these two ingredients. So, there is a need to make available the ingredients at cheaper rate so that the industry can be benefited.
- 4.2. The Regional centres are engaged in the production of seed, as the requirement of quality seed is the major issue. Only 25% of the quality seed is available, especially in case of the fodder, so there is a need to focus more on quality seeds.
- 4.3. The regional fodder stations produce foundation seeds and later the certified seeds will be produced by state government agencies and thus the regional fodder stations play a major role in the production of quality seeds and if the quality seeds are available more production of quality fodder is possible.
- 4.4. Mr. O. P. Chaudhary said that regarding GM Maize the AHD dept has already recommended. We have written to the concerned department and the moment we go for the GM feed the cost will automatically come down.
- 4.5. Maize consumption is 50% in Poultry industry in terms of input but the question is farmer will not benefit, as if the input cost goes down in the industry then the per kg cost to the farmers also goes down and the farmers will not be benefited due to low input cost right now and hence the MSP it is a sort of a contradictory.
- 4.6. if the input cost of maize, soya or other inputs goes down then the farmer does not get the equivalent remuneration because the farmer incurs a high input cost for growing the fodder crop, hence GM crop in a way will solve the problem because ethanol etc are also related and hence in combination government has to think big and this thought process has already started in the government.
- 4.7. Another is for the milk. The Input cost for the Milk is around 70 to 80% and there is a need for the silage industry to come up and now the government (NLM) is coming up with the Privatization of the Silage Industry and government wants to withdraw from the silage industry.
- 4.8. Mr. Tarun Shridhar said, most of the panellist and participants are really concerned about feed and fodder issue. Because feed is of the highest cost as far as cost of production is concerned and is the most important ingredient most important input in the production and also the most expensive. If we can handle the quality and cost of the feed, handling the cost without compromising the quality that would make our Industry really competitive and it is very artificial kind of situation which has been created that, cost of the same product is artificially high and also I think at the Government level we need to convince the decision makers that genetically modified ingredients should be a scientific issue and not an ideological issue I think we can make our Industry more competitive and I am glad that there is some thinking going on in that direction.

## **E) Export Marketing Scenario of Fisheries & Poultry:**

- 1. The reasons of India Lagging behind in Poultry sector in the international/Export Market, though India is the third largest producer of poultry. Government Support to encourage export of poultry products:**

- 1.1. There are two aspects. Our products should be price competitive in comparison to the main producing countries like US & Brazil as they are selling products at cheaper rates.
- 1.2. Our industry should maintain the international standards Processing, Handling, hygiene and disease control in the poultry sector.

## **2. Fish is India's biggest Export (48,000 Crores approx. and out of this shrimp is 40,000 crores approx.). Post COVID scenario of Fish & Shrimp Export Market, as Shrimp and sea food are heavily dependent for the input and output on the overseas Market. Justification of Atmanirbhar Slogan of PMO:**

- 2.1. Mr. Sagar Mehra said that, as a result of Covid the overseas demand has totally diminished, but Most of the countries, they are relaxing their lock down restrictions and the government hopes that demand will be pick up and we will be able to export our products.
- 2.2. Apart from this, we also promoting our domestic market along with value addition of our harvest in the new markets, so that we can overcome the ongoing situation.
- 2.3. In order to sustain our exports the government has come up with a strategy wherein, the government is promoting diversification of species and product abide by standards and certification and
- 2.4. Regarding species diversification government is trying to focus on Seabass, Tilapia, Mud crab, scampi, Pangasius, Tuna value additions, Also in the export, the government is looking for ornamental fisheries. Its markets are in a big way and
- 2.5. The sea weed cultivation will also be promoted in a big way by the government.
- 2.6. The government is looking at the entrepreneurship models in private sectors ie PPP Model, Cluster based approach, where aqua parks, would be an end to end solution, one stop solution so that we can sustain the momentum.
- 2.7. Presently, the focus is only for one species, we are looking in a big way for the diversification of species.
- 2.8. Development of domestic Specific Pathogen Free (SPF) stock of potential fish species such as, black tiger prawn, Penaeus monodon- Asian Tiger Shrimp, sea bass, etc.
- 2.9. The government will develop multiplication centres and nucleus breeding centres etc. and with the growing population the spending capacity of the normal areas is also increasing and the demand will increase and in the most schemes, the government is concentrating in a big way on the urban fish market as well.
- 2.10. Promote strengthening of our domestic demand, especially in urban markets in A and B grade cities i.e. retail market and wholesale market will be promoted in a big way. So that apart from exports we also have domestic demand in a big way in coming years.

## **F) Government's Campaigning Strategy during COVID 19 :**

### **1. Government Campaigning Strategy for Dealing with fall in demand of Livestock**



**Products except Milk due to Larger section of Indian population having cultural issues preferring Eating Non-veg at restaurants and avoid home cooking, Dealing with Media Rumours about spread of pandemic due to non-veg consumption:**

- 1.1. Dr. O. P. Chaudhary said that this is the greatest challenge post covid and during covid also. Rumours through print media, electronic media, social media were there discriminating consumption of meat as it will be the cause of spreading corona virus. Before the lock down itself the government has started giving advisories to the states and requesting industry also to counter the false propaganda.
- 1.2. Till date the government has no proper strategy to counter it as it has some limitations and the industry should take initiative counter it So we are requesting the industry to do this, we are also taken AHD minister into the confidence because social animal welfare activists , scientific people also they are having a lobby and they are also countering our efforts. There is a very strong need to create an awareness systematically with a strategy.
- 1.3. Mr. Sagar Mehra said that from DOF, we are writing to various chief secretaries and secretaries that, consumption of fish and fisheries products will not spread COVID and other virus to humans. Few states at their end are taking some campaign, but there is no concentrated all India plan as such.

**G) Economic impact of COVID 19 outbreak on dairy sector and steps taken by the Department to mitigate the crisis:**

**This section was covered by Shri. Chinmoyjit Sen, Deputy Commissioner (Dairy Development), Dept. of Animal Husbandry & Dairying.**

1.1) Due to the onset of the situation owing to COVID 19, a large number of small private dairies are reported to have closed operations resulting in diversion of milk to dairy cooperatives. These small private dairies were mainly catering to milk based sweet making shops. Due to the restrictions imposed, the milk supply to hotels and restaurants by private as well as cooperative dairies have been affected. Some of the problems faced by the Cooperatives and private dairies due to the lockdown is given as under:

- a. Milk procurement and supply vehicle movement hampered.
- b. Packaging material supply affected.
- c. Distribution points closed down.
- d. Contractual staff/ labour not able to attend duties due to sudden lockdown followed by migration of labourers to other States/locations.
- e. Supply challenges being faced by distributors, transporters, labour, staff etc.
- f. Production units of packaging and other supply materials shutdown affecting supplies.
- g. Liquidity problem due to higher conversion of liquid milk into milk powder and white butter (due to increased milk procurement and reduced sale) causing depletion / evaporation of cash in hand/surplus.
- h. Distress selling of raw milk by milk producers.
- I. Distress selling of livestock for want of supply/availability of basic feed concentrate (due to





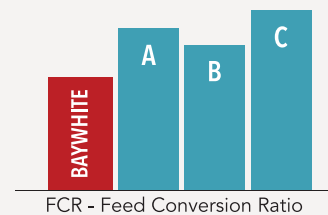
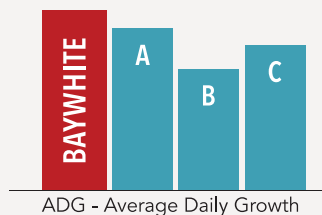
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closure of village shops, disruption in supply chain etc) and even to some extent fodder (due to lockdown, etc.).

2.1 AMUL, the largest dairy cooperative constituting 40% of all cooperatives in the country has reported 10-12% higher milk procurement and 9-10% lower sales than their respective averages.

2.2 The milk procurement by major dairy cooperatives during March 2019 was 510 lakh litres per day (LLPD) whereas on 14th April 2020, it was 522 LLPD, and as on 22.05.2020, it is about 570 LLPD thus in the last one year there is an increase of 12 %. Although procurement of milk varies seasonally and based on the domestic & international demand, the sale of milk at the domestic market generally remains more or less stable. But due to supply chain disruption due to lockdown, Sale of milk has dropped from 329 LLPD in March 2019 to 318 LLPD as on 14th April 2020. However, with the intervention of the Department addressing issues related to supply chain disruption, milk sales have marginally increased to about 400 LLPD as on 22.05.2020. Thus, with an increased milk procurement, a gap of about 30% is observed between milk procurement and sales over the last one-year period. Due to higher milk procurement lower sales, the cooperative sector has resorted to large scale conversion into high shelf-life products like milk powder, white butter and UHT milk. Such conversion results in blockages of funds, reduction in cash flow and thus they face difficulty in making payment to the farmers. Further, due to COVID 19 outbreak, there is reduction in income of milk consumers because of salary-cut, closure of business units etc. Due to income elasticity of demand of milk and milk products, there is decrease in demand for high valued products like ice-cream, flavoured milk, ghee, cheese etc. due to reduction in income of consumers. Post-COVID 19 outbreak, only a small quantity of milk are getting converted to products like paneer and dahi impacting the sales turnover and realization for the dairy units. This is likely to limit dairy co-operatives to procure milk at the current level. Dairy cooperatives might be forced for downward revision of procurement price.

2.3 As of now, the procurement price of milk has marginally reduced. Average procurement price of Rs. 37.65 per litre (6% fat and 9% SNF) in Jan 20, has marginally reduced to Rs. 36.56 per litre as on 22.05.2020.

2.4 The stocks of Skimmed Milk Powder (SMP) is a major indicator of the prevailing situation. In the month of January 2020, the stock of SMP was 47,946 Metric Tonnes (MT) and sold @ Rs. 314/kg in the domestic market. The stocks of milk powder in February 2020 was only 62,455 MT sold @ Rs. 320/kg and has increased to 86000 MT in the first week of April 2020 and price fell down to Rs.250/kg. With the extension of the lockdown period, it is likely to further create financial stress to the cooperatives.

2.5 To mitigate the crisis situation, the Department has initiated aggressive consultation with the stakeholders. The Department has diligently addressed major supply chain related issues resolving them to a larger extent. It was largely ensured that dairy cooperatives and private dairy processors can operate during the lockdown period by restoring operations of their milk procurement /collection centre, milk sale booths, packaging material making units, cattle feed plants etc.

2.6. Furthermore, based on the feedback received from the dairy industry, the Department made an assessment that at least Rs.5000 Cr would be required as working capital for dairy cooperatives. The Department has therefore initiated a scheme to make provision for interest subvention on working capital loan for the dairy industry through one of the Department's scheme titled "Supporting Dairy Cooperatives and Farmer producer Organisation". This interest

subvention could be availed by dairy cooperatives on working capital loan to be taken by them from any financial institution across the country. Even, unsecured loans are also eligible for getting such interest subvention benefits. This will enable dairy cooperatives to get much needed liquidity to sustain their operations. The scheme will provide interest subvention of upto 2% on working capital loans to cooperatives and milk producer companies. Dairy cooperatives can get additional 2% as interest subvention on timely and prompt repayment of loan.

The scheme will have the following benefits:

- Help in providing stable market access to milk producers.
- Enable the Producer Owned Institutions to make timely payment of milk bill to milk producers in farmers' income from dairying even during flush season making the dairy operations viable for milk producers.
- Help Producer Owned Institutions in supplying quality milk and milk products to consumers at a reasonable price.
- Help in stabilizing the domestic market price of conserved dairy commodities.
- Lead to reduced dependency on imported commodities during the period of shortage, thereby helping in stabilising the domestic prices of milk and milk products.

2.7. On the lines of DIDF and FIDF, the Department has also initiated the process of finalising another scheme titled Animal Husbandry Infrastructure Development Fund (AHIDF). This scheme envisages to provide interest subventions upto 3% for creation of dairy infrastructure including cattle feed plants etc, amongst other activities.

Eligible Private dairy processors can avail subsidised loan out of the corpus fund with an overall amount of Rs. 15000Cr. Finalisation of the scheme modalities and its final approval is in progress.

2.8. Besides above, following additional suggestions as way forwards could be explored for the benefit of dairy industry on short term, medium/ long term basis to restore and develop dairy activities across the country:

#### **Short term:**

**a. Transport** subsidy on cattle feed concentrate supplied by dairy cooperatives to their enrolled farmer members may be provided to the dairy cooperatives. However, dairy cooperatives should pass on such subsidies to the farmer-members by linking it with the quantity of milk poured by these farmers.

**Justification:** Cattle feed constitutes a major share (about 70%) of total cost of production of milk. Due to supply chain disruption, farmers are compelled to pay a high price for the needed to continue and sustain milk production activity viably. Under these circumstances, transport subsidies on cattle feed will help farmers to partly reduce their high feed cost burdens.

#### **Medium/long term:**

**b. Capital subsidy** linked with bank loan to purchase milking cattle may be provided to small and marginal farmers. Such capital subsidy may be provided through GoI schemes like State rural livelihood missions. Bank loan loan component could be interest free for initial one year (grace



period) with a moratorium period of another one year, on interest. These small farmers should be encouraged to form SHGs or JLGs, in absence of collateral security (for loan above Rs. 1 lakh). Repayment of such unsecured bank loan component could be linked with joint assets of SHGs.

**Justification:** Due to lockdown, distress selling of livestock in rural areas has affected means of sustenance and the income of small and marginal farmers. To bring these farmers into the fold of rearing of livestock like milking cattle, poultry, piggery etc., they need to be supported.

**c. Cattle feed manufacturers** may be encouraged to prepare district-wise ingredients (cattle feed) matrix. The scope of the such matrix could be enlarged to cover breed-wise (of livestock) balance feed requirement /nutritional requirement and which ingredient could meet that requirement. Such ingredients matrix will help compound feed manufacturers and farmers to locally source their ingredients at lesser price by saving transportation cost, reducing wastage of resources. Even the option of low-cost protein sourcing through green fodder could be explored. This initiative will help farmers at large to minimise their cost of production.

Justification: Transporting feed ingredients from one district to another adds to the cost of compound feed. Supply chain bottlenecks has now become one of the major constraints in sourcing feed ingredients. As a result, in some part of the country, ingredients are either wasted or farmers are selling at through away prices under compelling circumstances.

## H) Summary & Conclusions

1. Mr. Tarun Shridhar said now in this scenario the focus on production and productivity has also pushed up the demand and by pushing the supply side and demand side probably we are creating an imbalance as far as livestock economy is concerned.
2. He said that, the general uncertainty with the Industry is basic arised on account of situation, uncertainty on account of response, through the situation.
3. He said that the government panellists have given a very big and optimistic kind of scenario. However, he added that the commitment and willingness to keep engaging in a dialogue and feedback with the Industry should keep continuing.
4. We will also have to keep looking at the various kinds of incentive in terms of Matsya sampada yojana, in terms of animal husbandry infrastructure development fund ,while they are usually welcome financial allocation for this sector which has not happened in the past but at the same time something which was always in the pipeline , but this crisis has enabled to accelerate the process, process of approvals, etc. of different schemes of the government.
5. Mr. Sagar Mehra added that, the situation is challenging, but we should stay optimistic and there should be no place for anxiety and we should all work together with the Industry more often we should have more and more dialogues and address the issues together.
6. Mr. Tarun Shridhar extended his thanks to all the panellists and appreciated CLFMA for organizing the webinar.
7. Mr. Tarun Shridhar said that, policies and programs especially with huge investments in livestock sector, fishery sector and even dairy sector with infrastructure development fund should be utilized efficiently to overcome the crisis.

Mr. Bhawe, Chairman CLFMA extended his thanks to all the panellists and the participants.



## **I) Poultry Industry - Comments by Mr. Soundararajan , Past Chairman, CLFMA OF INDIA**

8. The Poultry Industry in the year 2019 itself started suffering because of the very high cost of inputs like Maize and Soyameal.
9. Maize annual consumption was around 14 million tonnes. Industry spent INR. 4000 crores additional cost than the previous year. It cost around 5600 (five thousand six hundred) crores. Soyameal 60 Million tons @ INR.4000, Spent Rs.2400 Crores more than the previous year. We are suffering because of the high raw material cost.
10. Dr. O. P. Chaudhary, JS-NLM and his team has done an excellent job in countering the mis-propaganda with regard to the rumours of spread of corona virus due to consumption of chicken meat. They removed the fear of the consumers by giving advisory statements to the state governments, who also took timely actions and was able to revive the situation in a months' time.
11. Due to the rumours, it led to a loss of nearly about INR. 40000 crores not only for the chicken industry but also for the egg industry.
12. Now gradually the markets are picking up and presently the production is going up to 30 to 40% and demand is also ranging from 30 to 40% and its matching. But many farmers and even companies are in the bad shape, as their balance sheet is impacted heavily. Their 20 to 30 years efforts are lost.
13. With regard to exports he said that, it will not happen for another 2-3 years as, we have to match on corn and soya at par with the Brazilian and US price.
14. He said that the GM Feed has to be implemented for Input cost reduction.
15. He added that, currently the maize producers are also hit heavily. Last year at the same time the world market prices were around 16 to 17 thousand Rupees per ton and currently it has gone down.
16. Farmer is getting INR.9,000 Rupees per ton. Trade level would be around INR.12500 per ton. and said that the poultry and the agricultural farmers are incurring losses
17. Now there are lot of stimulus packages given (ie) about INR. 20 lac crores and out of that 2.5 lakh crores are going to the direct cash flow to the small and marginal farmers. But at the same time for INR.17.5 lakhs crores we have to depend predominantly on Bankers disposal, the banker's disposal has still has not come into effect.
18. He said that, the Government on short term basis should concentrate on allocation of funds needed as more than 50% companies and farmers have lost their business.
19. To recoup the business again money is needed and this allocation should be sector based, Since the industry will take 2 years to recoup the NPA norms are to be relaxed for a period of 2 years, then interest subvention is the other way but not for a new creation of infrastructure because already we are running with the higher infrastructure. The interest subvention should be given for the already existing loans on Feed Mills, Hatchery etc and not for the new ones.

## Seafood exports may gain as Japan lifts inspection order for Indian shrimp

Seafood exports to Japan is likely to gain with the country lifting inspection order for Indian Black Tiger shrimp (*Penaeus monodon*) after the export consignments of this shrimp were found free from any residue of synthetic antibacterial drug furazolidone, officials of the state-run Marine Products Export Development Authority (MPEDA) said.

India accounts for nearly 6% of the global fish production and is the largest producer of shrimps in the world. Black Tiger shrimp, commonly known as the giant tiger prawn or Asian Tiger shrimp, is a popular seafood delicacy the world over and also forms an important segment of India's marine products export basket. Japan consumes nearly 40% of India's Black Tiger shrimp exports, while it enjoys niche markets in EU and US also.

Japanese agency has also reduced import inspection sampling frequency for Black Tiger shrimp to 30% from the current 100%, said KS Srinivas, chairman, MPEDA. Order related with furazolidone was implemented in accordance with Section 3, Article 26 of the Food Sanitation Act of Japan.

Welcoming the lifting of inspection order by Japan, Srinivas said it is a validation of the relentless efforts undertaken by the MPEDA in raising the request at various platforms and through its trade promotion office in Tokyo. He added that MPEDA, through its field offices and society named National Centre for Sustainable Aquaculture, had been constantly educating the farmers on better management practices (BMPs) and the ill-effects of using unknown inputs, which may contain residues of antimicrobial substances like furazolidone.

Srinivas said that MPEDA has also been making sustained efforts to revive the production of Black Tiger shrimp by supplying high health seeds of the variety from its new Multispecies Aquaculture Complex (MAC) at Vallarpadam in Kochi. The seeds supplied by MAC have evoked a rapidly growing interest among the farmers to raise the disease-free variety, he said. The current decision by Japan will give an impetus to the farming and export of the variety, which has been shadowed by the mass production of exotic vannamei variety during the last 10 years.

## Gujarat lifts restrictions for fishing and marine industry

A day after the Union Home Ministry issued an addendum giving exemption to marine fishing activities from the lockdown restrictions, Gujarat government on Saturday lifted the restrictions for the fishing community and allowed them to venture into the sea for the catch.

Making an announcement, Secretary to the Chief Minister, Ashwini Kumar stated that Gujarat government has lifted the restrictions for fishing and allied activities amid nation-wide lockdown due to coronavirus outbreak.

"Fishermen in Gujarat can now venture into the sea for their regular business activities. We are starting to issue them tokens for the purpose," he said.

This also opens up the businesses connected with fisheries including processing, packaging, cold chain maintenance and transportation.

On Friday, the Union Ministry of Home Affairs had issued an addendum to the consolidated guidelines regarding the nationwide lockdown to fight Covid-19 virus.

"The 5th addendum exempts from lockdown restrictions the operations of the Fishing (Marine)/Aquaculture Industry, including feeding and maintenance, harvesting, processing, packaging, cold chain, sale and marketing; hatcheries, feed plants, commercial aquaria, movement of fish/ shrimp and fish products, fish seed/feed and workers for all these activities," it had stated.

Gujarat, which covers about 1/5th of country's coastline with its 1,600 kms of coastline, contributes about 20% of the country's total marine production. The state has about 8.42 lakhtonnes of fish production annually worth about ₹7,005 crore (2018-19).

## Animal Husbandry and Dairy Department has released a subsidy of Rs 1,02,00,000

Union Minister of Fisheries, Animal Husbandry and Dairying, Giriraj Singh participated as the Chief Guest at the award ceremony held on 8 May for the winners of the "Startup India-Animal Husbandry Big Challenge". Minister of State Sanjeev Kumar Balyan and Secretary Atul Chaturvedi were also present on the occasion.

The Department of Animal Husbandry and Dairy, in partnership with Startup India, launched the 'Animal Husbandry Startup-Big Challenge' to innovate for innovative and commercially viable solutions to address the problems faced in the animal husbandry and dairy sector. This challenge was started by Prime Minister Narendra Modi at a National Animal Disease Control Program in Mathura on September 11 last year.

Start up India - Animals follow the order application challenge

Value-added products: Some value-added dairy products such as cheese, smoothies, flavored milk, custard, yogurt, and other ethnic Indian products were introduced using innovative technologies for small domestic and export markets.

Single Use Plastic Option: Using an environmentally friendly alternative to replace single use polythene in the dairy sector.

Ending adulteration of milk: Dealing with adulteration of milk in the dairy sector.

Breed improvement and animal nutrition: Use of innovative techniques and new varieties of green fodder and rich animal feed for quick genetic gain among Indian breeds of cattle and buffaloes.

E-commerce solutions: To encourage innovations to provide modern digital infrastructure and consulting services across the country.

Product traceability: Use of technologies to monitor the journey of dairy products from agricultural production to consumption.

## FSSAI classifies import clearance & food testing as essential services

Food Safety & Standards Authority of India (FSSAI) has classified the import clearance of food items and functioning of notified food testing laboratories (including National Food Labs) under Essential Services during the COVID-19 pandemic outbreak.

All personnel who are assigned the charge of above essential services are required to be available in office on all working days from Monday to Friday between 9:30 am to 6 pm in order to facilitate the trade as well as ensure smoother operation of related services across the country. The Authority notified in a statement released on Tuesday.

FSSAI has its offices at six locations namely Chennai, Kolkata, Mumbai, Delhi, Cochin and Tuticorin and all these offices are fully operational for scrutiny of applications, visual inspection and sampling for import clearance to ensure expeditious processing of applications and timely issuance of NOC. Therefore, all importers are advised to inform their clearing agents accordingly.

Food importers facing any problem or need any further clarification in this regard may be advised to contact FSSAI's regional offices or email their queries at [import@fssai.gov.in](mailto:import@fssai.gov.in). The details of various regional offices are available on the website. FSSAI is keeping a close watch on the situation.

It will continue to assist food importers as well as ensure regular supervision and testing of food items and will take appropriate steps to ensure the safety of food products.

## Hatcheries looking to grow exotic fish can get approvals from States now

Hatcheries looking to grow already-approved exotic fish varieties do not have to rush to Delhi for approvals as these decision-making powers have been delegated to the States as part of improving ease of doing business in the fisheries sector, a senior Department of Fisheries official said on Monday.

Earlier, hatcheries planning to cultivate exotic fish species had to get approvals from the Centre before the commercial cultivation can begin. But last month, the Department of Fisheries issued a circular allowing the States to grant such permissions. "If the species is already approved for cultivation in the country and the broodstock is coming from a recognised centre within the country, the States themselves can give approvals to the hatcheries," the official said.

### Export basket

The move is part of the Ministry of Fisheries, Animal Husbandry and Dairying's plan to broaden India's fisheries export basket. While shrimp continues to be the major fishery export item from the country, there is a huge demand for varieties such as tilapia and seabass in the export market, which India has not been able to tap much. Relaxing the approval process can lead to higher cultivation of such exotic species within the country, the official added.

Shaji Baby John, Chairman of Kochi-based Kings Group, welcomed the decision taken by the government last month

and said this will immensely help entrepreneurs getting to aquaculture business in a big way as they do not have to approach Delhi for all such approvals.

The government has already drawn up a major programme to promote fisheries in the country by investing \$9 billion over the next five years. While the Centre, which recently announced PM Matsya Sampada Yojana would invest \$5.5 billion, the State governments are expected to invest a total of \$3.3 billion within this time frame.

## CMFRI launches GIS-based database on fish landing centres

The Central Marine Fisheries Research Institute (CMFRI) has launched an online GIS-based database on fish landing centres around the Covid-19 hotspots in Kerala.

The database has colour-coding of 156 fish landing centres in accordance with their geographical proximity to the Covid-19 hotspots.

The GIS database, which is available at [www.cmfri.org.in](http://www.cmfri.org.in), will be updated in tune with the changes in the status of Covid hotspots, said A Gopalakrishnan, Director of CMFRI.

The initiative will greatly help authorities and policymakers to monitor the daily activities and take steps for regulatory or safety measures in marine fisheries sector in the backdrop of the Covid pandemic.

Work is in progress to incorporate details of fish landing centres in other maritime States too with the GIS database, he added.

## Seafood sector gets relief on small revival of overseas shipments

The beleaguered seafood sector, which has remained stagnant due to the Covid 19 impact, hopes to find some revival of exports, albeit on a low note, to countries where there are minimal restrictions on documentation.

“We have sent shipments to Vietnam, Indonesia, Japan, China, etc, where there were no serious restrictions for demanding original export documents. However, the quantity shipped,

mainly shrimp, is very negligible, but the move has given a ray of hope in the current situation”, Alex K Ninan, President, Seafood Exporters Association of India, Kerala Region, said.

“We will be in a position to increase such shipments provided the government should be liberal in allowing the road movement of consignments from processing plants to the port. However, the 21-day lockdown is posing a hindrance, despite the exemptions given by the Government for the fisheries sector to carry out its operations” he told BusinessLine.

With sufficient stock in the cold storages of plants, Ninan said seafood processing companies could meet the export demand. The authorities, therefore, should allow movement of empty trailers to bring containers from the wharf to processing plants for shipments, he added.

### Surging demand for frozen seafood

Industry sources pointed out that the demand for seafood in the US is on the rise, as there is increased grocery buying during the Covid-19 crisis. Frozen seafood is the biggest winner, attracting robust sales, as retailers are running out of stock following a surging demand. Product shortages have also led to the delay of several days, both in online and brick-and-mortar sales.

According to Ninan, the current shipments have been made possible after these countries accepted scanned copies of all original documents, such as the Bill of Lading, Certificate of Origin, health certificates, etc, issued by the regulatory agencies here. Japan, Italy and Spain also acknowledged the scanned documents for the already arrived consignments in their respective ports, or else the sector could have faced more trouble in clearing those containers.

The lockdown, he said, has adversely affected mailing all original shipping documents abroad due to the non-functioning of courier companies.

### Appeal to extend lease period

Shrimp farmers in Kerala are not in a position to harvest their farmed stock because of the non-functioning of processing plants. Hence, the lease period of such farms should be extended till May 15, sources in the farming community urged. The decision of mechanised fishing boats not to venture into the sea and the impending trawling ban is likely to create a huge shortage of fish not only on the export front but in the domestic market in the coming days, they said.



## Punjab to promote maize cultivation in coming Kharif season

As the possibility of an extended lockdown impacting the smooth movement of labour looms, the Punjab government has decided to encourage the state's farmers to shift en masse to maize and cotton, instead of paddy.

Planting paddy is expected to start from June, depending on the progress of the southwest monsoon. Field preparation begins before that.

With migratory labourers having expertise in planting rice returning to Uttar Pradesh and Bihar after the lockdown announcement last month, Punjab is urging its farmers to grow cotton or maize as the next crop for the kharif season.

The state government has asked the Centre to further raise the Minimum Support Price (MSP) of maize and give incentives to set up maize-based industries so that farmers are encouraged to shift from growing paddy.

The current MSP of maize for FY20 is Rs 1,760 per quintal while that of common grade paddy is Rs 1,815 a quintal. While paddy has assured state procurement, maize doesn't factor, which makes it less attractive for growers.

Punjab has been working on shifting farmers from paddy to maize and other alternative crops in the kharif season and, in 2019, it managed to shift almost 0.75 million hectares from paddy to alternative crops. But now the focus has acquired more importance over fears of non-availability of labour. "What seems to be worrying Punjab is not the harvesting of rabi, but our next crop, which is paddy. This operation of planting paddy is totally labour-intensive and Punjab doesn't have the expertise or experienced labour to do it. So, instead of paddy we are asking to go for cotton or maize as it can be done with fewer number of labour," Punjab Finance Minister Manpreet Singh Badal told Business Standard recently.

In Punjab, paddy is planted in around 2.6 to 2.7 million hectares of land every year. But in 2019, the acreage dropped, as some farmers shifted from paddy to maize, cotton, high-value basmati rice and vegetables.

The state planted maize in around 0.16 million hectares of land, while cotton was grown in around 0.97 million hectares, sources said.

The state plans to at least double the acreage under the two crops due to labour scarcity.

While maize requires around 3-4 labourers per acre of land for manual dibbling of the crop, mechanised planter will reduce the time to less than two hours. That apart, even for harvesting, maize requires less labour than paddy as it can be done fully through combine harvesters. In comparison, per acre requirement for paddy planting is much more.

"At any point of time, I will urge people to grow maize instead of paddy as the price realised is more than paddy, while water

drawl is also lower and other ill-effects of growing paddy on the environment are also minimal," said Sain Dass, ex-director of Indian Council for Agriculture Research, and chairman of Maize Diversification Group of Haryana.

Punjab went into lockdown 20 days before the country due to its high NRI and immigrant population. Hence, the government is ensuring that the state has enough seeds for cotton and maize. "The government is trying to ensure that farmers get seeds from a proper place in a district," Badal said.

The Punjab government has also sought permission to expedite production of ethanol from maize to blend it with petrol. As for the current wheat harvesting season, Badal said Punjab had decided to spread the procurement of crops over 10 weeks as against 2-3 weeks that the exercise normally takes.

## Indian Bank launches new products to support farmers, poultry players

The Indian Bank has launched three new products to support farmers, poultry players and the workforce in the informal sector during the current crisis triggered by the outbreak of dreaded Covid-19 virus.

Under the IND Covid Emergency Agro-Processing Loan, agro-processing units can avail 10 per cent of the working capital limit.

Borrowers in the poultry sector (layer/breeder/broiler) can avail 20 per cent of the working capital limit under the IND Covid Emergency Poultry Loan scheme.

Similarly, under the IND KCC Covid Sahaya Loan, farmers cultivating crops and rearing animals and having Kissan Credit Card facility can avail 10 per cent of the limit as a soft loan, Indian Bank said in a statement. The loans are repayable in easy instalments with six months moratorium period, it said.

Besides, under a special credit package "SHG Covid Sahaya Loan", women members of Self Help Groups can avail loan @₹5,000 each. Thus an SHG with 20 members can avail a loan up to ₹1,00,000 as a soft loan repayable in easy instalments, the Bank said.

Covid-19 has affected farmers and workforce in the informal sector as well. While the food and agro-processing companies' have witnessed a decline in cash flow, farmers are facing a liquidity crisis as they have difficulties in working on their land and while accessing markets to sell their products or buy essential inputs. In the poultry sector, the industry is affected by fake news spread among the common public about their products.





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# Edible Spineless Cactus (*Opuntia Ficus-Indica*) As Alternative Feed For Animals

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## ABSTRACT

Spineless cactus (*Opuntia ficus-indica*) remains green even during summer and can serve as a feed resource during scarcity. It doesn't need well-drained soils and tolerates salinity to a higher extent. Cactus can produce a biomass of 20-200 tonnes DM/ha/year. Cactus could be a good source of water for animals particularly during the dry season. Cactus cladodes are high in water, sugars, ash and vitamins A and C but they are low in crude protein and fibre. They exhibit a high Ca: P ratio and are highly palatable. Spineless cactus can be used as a source of alternative green fodder for the livestock particularly in small ruminants and has the capability to combat extreme draught conditions with round the year availability which is very important from the view point of climate change scenario.

## INTRODUCTION

There are 193.46, 109.85, 148.88 and 74.26 million cattle, buffaloes, goats and sheep in India (20<sup>th</sup> Livestock Census-2019). There is deficiency to the tune of 44% for concentrate feed ingredients, 35.6% for green fodders and 10.95% for dry roughages in India (IGFRI Vision-2050). The government labels 30% of India's landmass as wasteland. Against the backdrop of ongoing climate change, frequent and long droughts, land degradation and green fodder scarcity, spineless cactus (*Opuntia ficus-indica*) can be a promising

alternative fodder for livestock due to its sustainability. Spineless cactus is a fast growing xerophytic plant well adapted to arid conditions. It remains green even during summer and can be used as a feed during scarcity. It has high water use efficiency and can grow in poor and degraded soils where other plants fail to grow. Cactus is vegetatively propagated and cladodes are used for this purpose. Cactus pear has the advantage of being a source of water for animals particularly during the dry season. It is tolerant to poor soil conditions and produces high biomass yield with acceptable palatability for animals. Hence it could be a potential source of alternate feedstuff particularly for small ruminants in arid and semi-arid regions.

## DISTRIBUTION AND PRODUCTION OF CACTUS

Cactus is available in a range of environments from sea level in the Californian deserts to an altitude of 4700 m (mean sea level) in the Peruvian Andes, and from tropical areas of Mexico with temperatures greater than 5°C to parts of Canada where temperature reaches as low as -40°C. It is cultivated in America, Asia, Africa, Europe and Oceania. Argentina has about 1650 ha under cactus cultivation. In some countries, cactus cladodes obtained on pruning the cactus orchards established for fruit production are also used for livestock feeding. This has enabled integration of livestock into the cactus production which brings back nutrients and



Fig 1: Spineless cactus cladodes



Fig 2: Goat grazing on cladodes



organic matter to cactus cultivation through manure and also complements farmers' income. Due to lack of information on the area under cactus cultivation, it is difficult to assess precisely the importance of cactus in different livestock production systems.

Its productivity is high in fertile soils and with irrigation. It also grows in poor soils and with little water. It doesn't need well-drained soils and tolerates salinity to a higher extent. Cactus can produce a biomass of 20-200 tonnes DM/ha/year. With such high biomass yield (60-fold increase over rangeland productivity), it is possible to produce sufficient forage to sustain 4-5 cows per year. In India, commercial cultivation of cactus is yet to start. During the last two decades the research was conducted by many public sector research institutes in India especially those are working in arid agricultural crops, but the outcome of this work is yet reach to the farmers. Cacti can produce 4-5 times DM per mm of rainfall than any other type of plant due to their crassulacean acid metabolism. Different clones/varieties of edible cactus have been developed, such as 1269, 1270, 1271, 1280, 1281, 1308, CAZRI Botanical Garden, Mount Abu, 1458, AHCP-2 etc. but their cultivation practices and nutritional worth remains to be elucidated

#### CHEMICAL COMPOSITION OF SPINELESS CACTUS

The cactus cladodes are high in water, sugars, ash and vitamins A and C but they are low in crude protein and fibre. They exhibit a high Ca: P ratio. Cladodes (1 to 3 year) are high in water during winter and spring (85-90%), less in summer (75 -85%). Younger cladodes have higher water content. Cladodes as forage can solve the problem of livestock watering but attention should be paid to their low dry matter content with regard to diet composition. To compensate for low dry matter content, the ruminant consumes large quantities of cladodes which may lead to diarrhoea. It is, therefore, recommended to include a fibrous feedstuff and appropriate supplements, particularly nitrogen (N) richer one. It was reported that penned sheep could be kept alive for 500 days without drinking water provided they had free access to fresh cactus. Compared with conventional feedstuffs, *Opuntia* cladodes have high ash content. Depending on the species and cultivar, the ash content ranges from 10-25% DM. Calcium (Ca) followed by potassium (K) is the most abundant mineral in the cladodes but the availability of Ca to rumen microflora and the host animal is compromised by the high content of oxalates and the extremely high Ca:P ratio.

Mucilage level is high in the cladodes of spineless (6-13 g/kg



Fig 3: High mucilage content in a cladode cross-section

fresh material) and spiny (6-14 g/kg fresh material) cactus. Mucilage concentration increases at least twofold in summer compared to winter. It reduces salivation in ruminants thus avoiding a rapid decrease in rumen pH. Carotenes, titratable acidity and carbohydrate contents increase during development while protein and fibre levels decrease. Cladodes are high in malic acid and its content fluctuates due to a CAM-based diurnal rhythm. Salem et al. (2004) reported that cactus cladodes contained 17.7% DM. The concentration of OM, TDN, CP, NDF, ADF, ADL, Ca, P, Na, K and Mg were 76.2, 65, 4.6, 33.8, 16.8, 5.2, 5.21, 0.1, 0.06, 2.6, 1.09%, respectively. The levels of Cu, Fe, Mn and Zn were 6.5, 170.8, 248.9 and 31.0 ppm, respectively.

#### LEVEL OF EDIBLE SPINELESS CACTUS IN RATION AND FEED INTAKE

Cactus was preferred by the animal over the conventional roughages like *Cenchrus* hay and Baru grass (*Sorghum halepense*). Mixing cactus and browse in silage making improved both DM and N content in the product. Cactus can serve as a link between legume forage and hays by supplying a degradable source of OM. Also, cactus-browse silages improve microbial protein flow to the lower gut for digestion thus increasing amino acid supply for maintenance, growth and production. Poor quality roughage utilization is improved with the addition of cactus-browse silages as supplements. These silages could be used in livestock feeding to improve livelihood in drier and resource constrained farming sections. Spineless cactus plus urea was found to be a useful alternative feed option in semi-arid regions during the shortage of feed and water in prolonged drought. It has been reported that



70% cactus and 30% concentrate can maintain a cow with daily milkyield of 20 L.

Due to its relatively high soluble carbohydrate and low fibre contents, inclusion of sun-dried *Opuntia cladodes* in diets increased the digestibility (particularly DM) and tended to stimulate voluntary intake. The digestibility of *Opuntia cladodes* is comparable with high quality hay. The plant is extremely variable in its nutritive value which depends mainly on species, variety, age of plant, season and plant part. It was showed that *Opuntia* from semi-arid regions in India contained 9.2% CP which is higher than the commonly used dry roughages (straw, strovers and grasses) in ruminant feeding.

#### **EDIBLE SPINELESS CACTUS IN RATIONS AND PRODUCTION PERFORMANCE OF ANIMALS**

There was improvement in weight gain due to inclusion of cactus in the diet or other comparable diets up to 50% on DM basis for sheep fed tef straw without causing digestive disturbances common in diets with high cactus inclusion. Cactus supplementation with cotton seed cake and peanut cake resulted in higher BW change and daily BW gain than the non-supplemented sheep. Researchers opined that the basal diet consisting of cactus and tef straw promoted body weight gain in sheep indicating their usefulness under conditions of feed scarcity. Cactus fed ewes tended to accumulate more colostrum at birth and yielded higher colostrum at 24 h than barley fed ewes. Cactus fed ewes even showed more milk production than the barley fed ewes up to 30 days of parturition. The results on use of cactus-legume diets were comparable to that of commercial diet. Provision of cheaper quality protein from browse hay and readily fermentable sugar from cactus to animal feeding on poor quality roughage improved roughage intake. Slaughter weight could be reached earlier if these supplements were used leading to higher and quick turn over in goats production.

#### **EDIBLE SPINELESS CACTUS AS ANIMAL FEED**

Shortage of animal feeds, both in quality and quantity, during dry periods is one of the major factors that affect animal production. The low nutritive value of the forage during the dry season is the main obstacle to increasing animal productivity. Use of non-conventional feed resources that are available and adapted in dry areas and use water more efficiently can be the best option to ensure viability of livestock in these drought prone areas. Ruminants adapted to these areas can make efficient use of non-conventional feed resources like *Opuntia ficus-indica*. There are different types of *Opuntia* spp. namely native thorny, less thorny, thorn-less and regular type. All the four varieties are palatable with a variation in nutrient composition. The native thorny and less-thorny varieties are adapted well to semi-arid regions like Rajasthan, Haryana, Maharashtra and other states. However, cactus cladodes have high water content which results in high ruminal degradability and laxative effects when fed alone, but this laxative action has no detrimental effect on the animal's health. The low CP content of cactus may affect its use as a complete feed as it may cause protein deficiency in livestock. Ensiling it with dried forage legumes could increase the dry matter content making it suitable for ruminant feeding.

#### **CONCLUSIONS**

Hence, edible spineless cactus can also be grown easily in the lands with low water content and it has greater tolerance to higher soil salinity compared to most of other cultivated crops. Growing cactus as a forage source for livestock can lead to a proper utilization of waste lands and its feeding also reduces the water requirement as its cladodes which is of significance to the livestock farmers particularly in draught prone regions of the country. Therefore, under climate change scenario edible spineless cactus could be an alternate source of green fodder for livestock particularly small ruminants.

# Effect of Aflatoxicosis in Animals and Ameliorative Measures

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## INTRODUCTION

Since time immemorial, fungi have played an important role in mankind's life but certain species produce toxins which may be harmful for both humans and animals. Different toxins produced by these fungi are called as mycotoxins. These toxins are found all over the world and when present in feed can be very dangerous to animal health and production. These toxins (Aflatoxin, Ochratoxin A, Fumonisin, Trichothesis, Zearalenon, T2 toxin etc.) are produced by fungi like *Aspergillus* spp, *Penicillium* spp, *Fusarium* spp etc which have capacity to affect the health and productivity of animals and can be produced in both fodder and concentrate feed during different stages of their production and storage.

Out of these, aflatoxins are more important considering their occurrence and adverse effects on animal and human health. Aflatoxin was first noticed in England in 1960 when around one lakh turkey died suddenly due to unknown disease at that time. Later on causative agent was found to be aflatoxin present in maize. In India, epidemic of liver disease occurred during 1974 in areas of Rajasthan and Gujarat which resulted in deaths of hundreds of humans and dogs. Causative agent for this was also reported to be aflatoxin present in maize grains. Cereal grains are more susceptible to aflatoxin infestation. Feed ingredients like maize, groundnut, cotton seed cake, brans, rice etc. are particularly prone to aflatoxin production.

## TYPES OF AFLATOXINS

Aflatoxins are produced by *Aspergillus flavus* and *A. parasiticus*. Aflatoxin group is quite prevalent and one of the most dangerous mycotoxins found in India and Asian continent. In this group, 20 different toxins are classified. Out of them, four major aflatoxins that cause illness in humans and animals are identified as B1, B2, G1, and G2, based on the colour of fluorescence under ultraviolet light, where B stands for blue and G stands for green. Aflatoxin B1 is the major type being the most potent among all. Aflatoxin M1 found in milk is produced by dairy animals that consume aflatoxin

contaminated feeds. Young animals are more susceptible but it can affect all age group animals.

## Factors affecting the level of contamination of aflatoxins in feedstuffs

- Selection of more resistant varieties of crop can reduce the occurrence of fungus infestation
- Selection of time for crop planting to avoid increased temperature and draught stress during the seed development and maturation can reduce the chance of fungal infestation
- Early harvesting of ground nuts resulted in lower aflatoxin level
- Insects can act as vector for fungal spores that may result in aflatoxin production
- Storage facilities should be clean, dry, and free of insects, rodents, birds and visible fungal growth
- Reduction of grain damage before and during storage can reduce the mold growth. A moisture content of 16-30%, ambient temperature of 25-35°C and relative humidity of >70% are very congenial for development of *Aspergillus flavus* on feed ingredients.
- Moisture level of the grains should be minimized less than 15% to prevent mold growth
- Mixing of grains and long term storage should be avoided
- Storage of grains should be done in low temperature and low oxygen level (<1 mL/100 mL)
- Use of antifungal agents, preservatives, antioxidants and essential oils may help to reduce fungal growth during storage

## PRESENT STATUS OF AFLATOXIN CONTAMINATION IN INDIA:

As per the milk survey report published by GoI in 2019, 7.1%

of total milk in India is not suitable for consumption out of which 5.7% is unfit due to presence of aflatoxin  $M_1$ . Aflatoxin  $M_1$  in milk is due to presence of aflatoxin in feed/fodder consumed by animals. This gains entrance to animal body mainly through consumption of infected maize, groundnut cake, cottonseed or its cake and other fungal infected materials and then it is secreted through milk. According to Biomin's report of 2019, aflatoxin level in 89% of cattle feed material samples in south Asia (mainly India) was above satisfactory mark. So we can easily understand the importance of aflatoxin in cattle feed. There is positive relationship between the level of aflatoxin B1 in feeds and that of aflatoxin  $M_1$  in milk.

### EFFECT OF AFLATOXIN ON ANIMALS

Aflatoxin causes negative effects on the health of both humans and animals besides causing economic losses. In 1993 International Cancer Research Institute declared aflatoxin B1 as category 1A cancer causing agent. In humans, it causes depressed immunity, liver cancer, decreased growth rate in children and other diseases. It affects different animal species at different severity level. Susceptibility of different animal species for aflatoxin is in the order of: rabbit > duck >

turkey > poultry > fish > pig > cattle > sheep. Males compared to females and young compared to adults are more susceptible to aflatoxicosis. Aflatoxin B1 and its metabolites are carcinogenic, teratogenic, mutagenic, causes liver diseases and decreases reproductive efficiency and immunity in animals.

### REGULATIONS

Normally, if 66 units of aflatoxin  $B_1$  are present in feed than 1 unit of aflatoxin  $M_1$  is reported to be secreted in milk. High yielders and those infected with mastitis secrete more proportion of aflatoxin in milk. Aflatoxin  $M_1$  in milk can be detected as early as 24 hours after feeding of infected material to cattle. However, percentage of aflatoxin transferred to poultry meat is lesser than milk and is 0.1-0.2% of that present in feed. According to US Food and Drug Administration (USFDA, 2019), Bureau of Indian Standards (BIS) and Food Safety and Standards Authority of India (FSSAI, 2019), the maximum permissible limits for feed ingredients/compound feeds for dairy animals and poultry has set to 20 ppb while that for aflatoxin  $M_1$  is 0.5 ppb. Therefore, periodic estimation of their levels in feed and milk is necessary to safeguard animal and human health.

**Table 1: Carry over rate of different mycotoxins from feed to milk (Johanna Fink-Gremmels, 2008)**

Mycotoxins	Reduction of biological potency	Estimated carry over rates (%)
Aflatoxin $B_1$	Minor	0.3–6.2
Fumonisin $B_1$	Unchanged	0 –0.05
Ochratoxin A	Significant	< 0.02
T2 toxin	Significant	0.05–2.0
Deoxynivalenol	Significant	0.0001–0.0002
Zearalenone	None	0.06 – 0.08

**Table 2: Maximum levels of aflatoxin  $B_1$  in animal feeds (USFDA, 2019)**

Intended use	Animal food and animal food ingredient	Action level
Finishing (i.e., feedlot) beef cattle	corn and peanut products	300 ppb
Beef cattle, swine, or poultry (regardless of age or breeding status)	cottonseed meal	300 ppb
Finishing swine of 100 pounds or greater	corn and peanut products	200 ppb
Breeding beef cattle, breeding swine, or mature poultry	corn and peanut products	100 ppb
Immature animals	corn, peanut products, and other animal food and food ingredients, but excluding cottonseed meal	20 ppb
Pets (dogs, cats, rabbits, etc.) of all ages	corn, peanut products, cottonseed meal, and other food ingredients and complete pet food	20 ppb
Dairy animals and other animal species (including wildlife), or other uses not specified in this table; or, when the intended use is not known	corn, peanut products, cottonseed meal, and other animal food and food ingredients	20 ppb

### Strategies to reduce effect of aflatoxin through feed

While purchasing and storing feed, moisture content should be less than 13% and keep regular check for any fungal growth.

#### 1. Physical methods:

- We can physically identify and sort out fungal infected material
- By adding various types of organic (Glucomannan, S. cerevisiae yeast wall extracts, Mannan-oligosaccharide) and inorganic (bentonite, aluminosilicate, zeolite, activated charcoal) toxin adsorbents (toxin binders) in feed, their absorption can be reduced in animal body. These binders are normally added @ 0.2-0.5% in feed.
- Other processes are also there like heating for appropriate time, extruding, microwaves or UV radiations.

**Table 3: Effect of other physical methods used for reduction of aflatoxin in feed**

Type of food	Type of food	Reduction level of aflatoxin(%)
UV radiation (80 min)	Peanut surface	100
Gamma radiation (3-5 min)	Corn and walnut	>60
Microwave UV radiation (3-5 min)	Peanuts	>50
Heating (in rice cooker) 30 min	Rice	25
Extrusion (150° C)	Peanut meal	77
Electron beam radiation	Brazil nut	66
Pulsed light	Rice bran	90

- 2. Chemical methods:** In this method we can use various chemicals like ammonia, ozone, organic acids or plant extracts and mix in cattle feed so that affect of aflatoxin can be avoided.

**Table 4: Chemicals used for detoxification of aflatoxin:**

Chemicals/ plant species	Type of food/assay	Detoxification (%)
Ozone	Wheat grain	95
Ozone	Peanuts	66
Ozone	Corn kernels	78
Citric acid	Soybean	94
Lactic acid	Soybean	93
Succinic acid	Soybean	62
Tartaric acid	Soybean	95
Justicia adhatoda (adulsa)	In vitro	98.4
Corymbia citriodora (eucalyptus)	In vitro	95.2
Cassia fistula (golden shower)	In vitro	54.4
Ocimum basilicum (basil)	In vitro	92.8

- 3. Biological methods:** Various biological agents like bacterial cells, yeast cells, enzymes etc have been found to reduce level of aflatoxin but these methods are not so practicable and popular.

### Conclusions

Presence of aflatoxin above permissible limit in feed ( $B_1$ ) and milk ( $M_1$ ) is a very serious issue as it severely affects health of both humans and livestock. It can be carcinogenic, teratogenic, mutagenic, can cause liver disorders, depress reproductive efficiency and immunity. So every feed manufacturer should comply with BIS standards and farmers should also take all care of optimum temperature and humidity during storage of feed material so that production of aflatoxin could be minimized. Various ameliorative measures should be followed for minimizing aflatoxins in feeds and their ill effects in animals and human beings.



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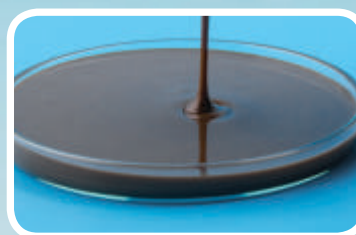
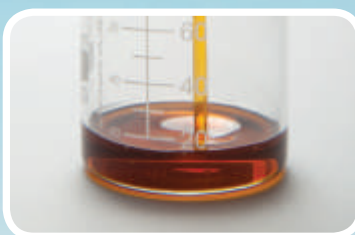
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