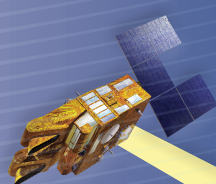




MINISTRY OF NATIONAL
FOOD SECURITY AND
RESEARCH



SUPARCO



PAK-SCMS

BULLETIN

PAKISTAN: SATELLITE BASED CROP MONITORING SYSTEM

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INSIDE THIS ISSUE

	CROP SITUATION: SEPTEMBER, 2023	01
	REVIEW OF KHARIF 2023	03
	IRRIGATION WATER SUPPLY SITUATION: SEPTEMBER, 2023	10
	FERTILIZER SITUATION	11
	AGRI. RECOMMENDATIONS	12

SUPARCO, the National Space Agency of Pakistan, started the program on "Monitoring of Crops through Satellite Technology" during the year 2005. This is a perpetual study encompassing all growing seasons around the year. The purpose of this initiative is to reinforce support for policy makers, planners and private sector for food security, stocking, marketing, trade and industrial management. The final crop estimates are released by end of March for Rabi crops and mid of October for Kharif crops.

Food and Agriculture Organization of United Nations, (FAO-UN) provided technical backstopping for analytics and transfer of technology. Wheat, cotton, rice, sugarcane, maize and potato crops are being covered under this program. In addition, large scale geospatial applications of satellite remote sensing technology have been made for monitoring/mitigation of natural disasters (floods, flash floods, and drought) and providing reconnaissance detailed information ordained for the uplift of agriculture and allied pursuits.

CROP SITUATION: SEPTEMBER 2023 Summary

By the end of September 2023, descending values of Satellite based Normalized Difference Vegetation Index (NDVI) manifest maturity/harvesting of Kharif crops. During September 2023, normal to slightly above normal rainfall was observed in Parts of Punjab, Sindh and Gilgit Baltistan. While below normal rains were recorded over Balochistan, AJK and Khyber Pakhtunkhwa. Maximum temperatures during first fortnight of September 2023 remained above normal, especially in parts of South Punjab.

Cotton crop was generally satisfactory during current season. Weather remained favorable for crop growth with no or least climatic hazard, resulting in increased yield over last year. Generally, less pest pressure was observed than last year. According to Pest Warning Department Punjab, white fly infestation remained under control up to mid-August 2023. Increasing attack of white fly and pink boll worm was observed in Punjab during September 2023 but the level of infestation above ETL was

less than last year. During current year, increase in cotton sowing was observed in Bahawalpur Division in Punjab and in major cotton growing districts of Sindh province. However, a decrease was observed in Multan division and districts of Central Punjab.

As per report of Pakistan Cotton Ginning Association (PCGA) on 1st October 2023, cotton arrivals in ginning factories of Pakistan were 5025.282 thousand bales as compared to 2936.153 thousand bales showing an increase of 71.15 percent. In Punjab and Sindh, the cotton arrivals during the reported period were higher by 33.89 and 112.57 percent, respectively, as compared to the same period of last year.

In local market, average ex-gin cotton price during September 2023 was lower by about 14.2 percent compared to September 2022. Approximate average ex-gin price during September 2023 was Rs. 20109.5 per 40 kg against Rs. 23439.4 during September 2022 showing an increase of Rs. 3329.9 per 40 kg.

CROPS SITUATION

Sugarcane crop growth was generally satisfactory. Sugarcane productivity may increase this year mainly due to increase in crop area sown and effective and timely crop management activities because of higher sugar price and better sugarcane procurement price in the market.

Harvesting of early sown coarse rice has been started in most parts of country. In the Kalar tract of Punjab, basmati rice has reached at maturity stage. Above normal temperatures during September may affect rice crop productivity.

As per report of Indus River System Authority (IRSA) for September 2023, the irrigation water supply was 13.97 MAF against the last year's supply of 8.40MAF, increased by 66.30 percent. As compared to the same period of last year, better irrigation water supplies were observed in all provinces.

As per report of National Fertilizer Development Centre (NFDC), total availability of Urea in August 2023 was 739 thousand tons whereas total availability of DAP was 306 thousand tons. During August 2023, off take of Nitrogen, Phosphate and Potash increased as compared to the same period of last year.



Normalized Difference Vegetation Index (NDVI) 30th September 2023

Kharif Crops

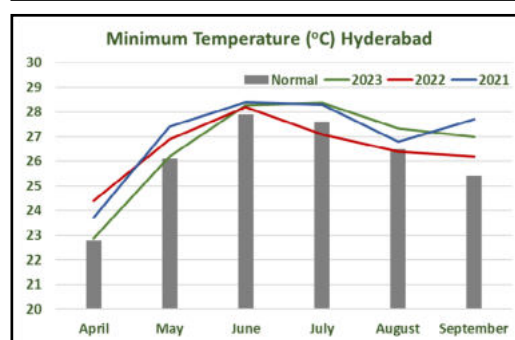
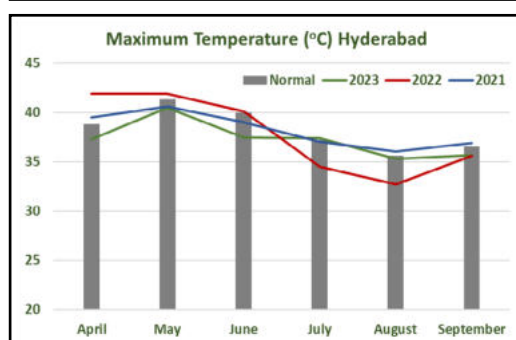
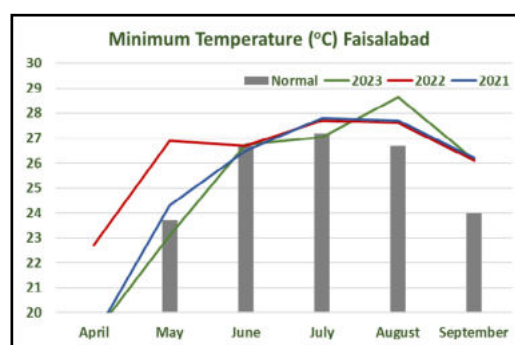
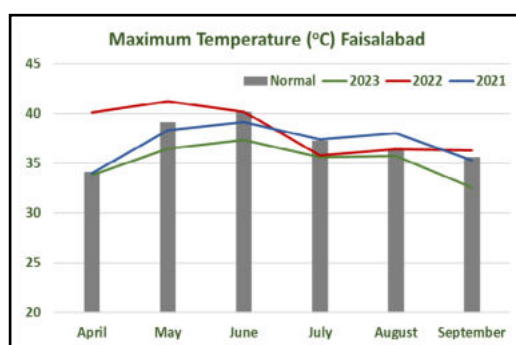
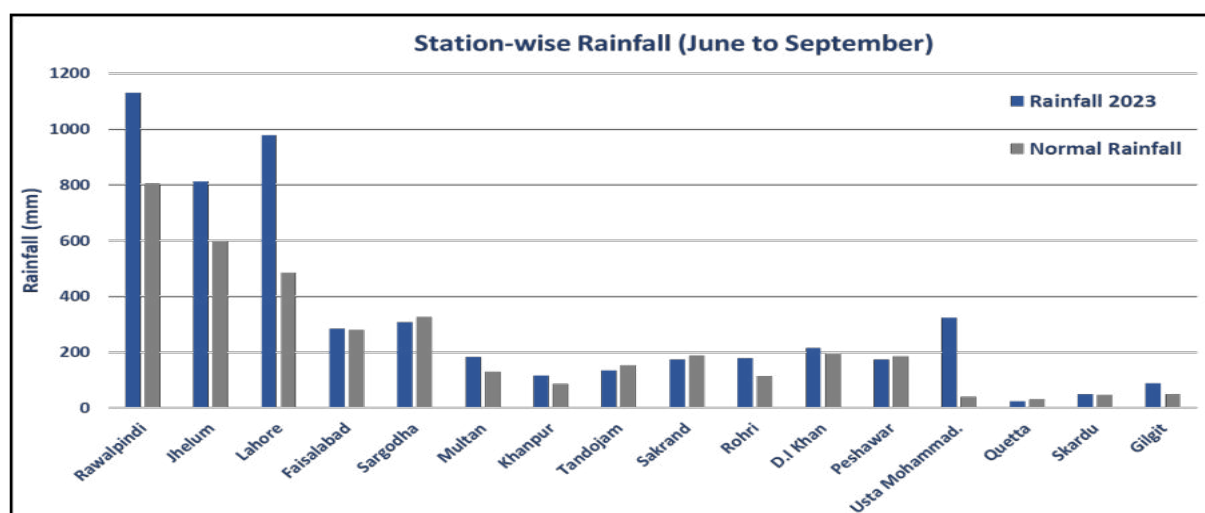
Review of Crop Input Parameters during Kharif 2023-24

Weather Situation

During Kharif 2023-24, weather conditions were better than last year. During last year (kharif 2022-23), historical heavy rains were recorded in parts of Punjab, Sindh and Balochistan causing the riverine and torrential floods.

This kharif season, normal to above normal rains were observed during June to July 2023 in various parts of country. High rainfall was observed mainly in Northern and Eastern parts of Punjab, Sindh and Balochistan. During August 2023, generally below normal rains were observed in agricultural plains of country. During September 2023, normal to slightly above normal rainfall was observed in Parts of Punjab, Sindh and Gilgit Baltistan. While below normal rains were recorded over Balochistan, AJK and Khyber Pakhtunkhwa.

Temperature regime in agriculture areas was generally better with below normal maximum temperatures. While above normal minimum temperatures were observed during July-September 2023. However, maximum temperatures during first fortnight of September 2023 remained above normal, especially in parts of South Punjab.



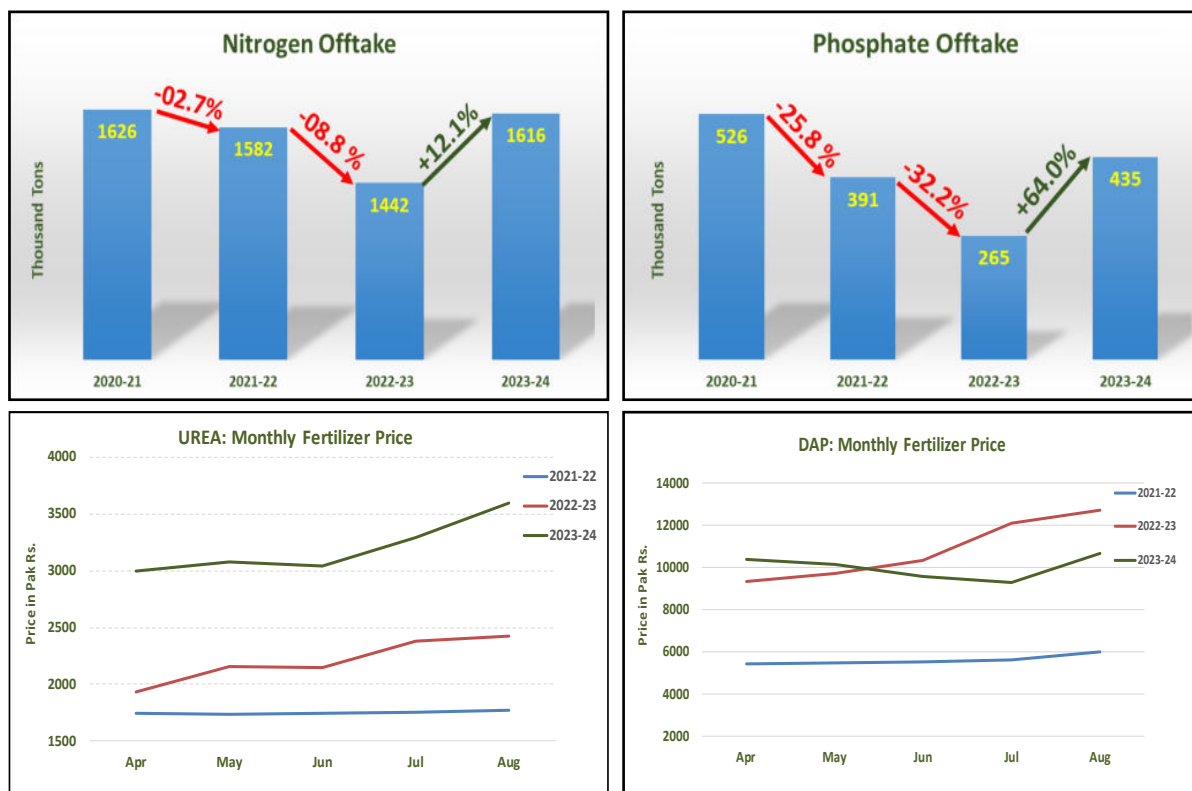
Source: PMD

CROPS SITUATION

This year, overall weather situation during Kharif 2023-24 generally remained favorable for kharif crops with ample rains and favorable temperatures. Weather conditions during this year supported a better crop growth resulting in significant increase in yield of cotton crop with a positive effect on rice and sugarcane crops.

Fertilizer Situation

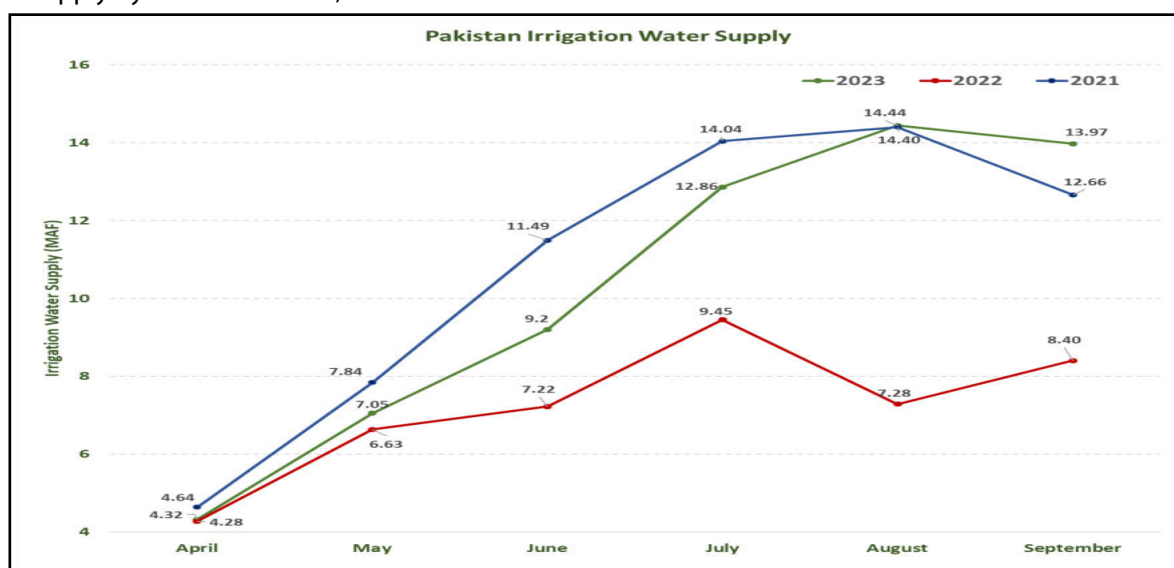
Total Nitrogen, Phosphate and Potash off-take during April to August 2023 increased by 13.9, 27.2 and 37.9 percent respectively as compared to same period of last year. This increase in offtake has a significant impact on overall Kharif crops productivity. Average urea price during April to August 2023 showed an increase of 44.97 percent as compared to same period of last year. Average DAP price during April to August 2023 shows a decrease of 7.50 percent than same period of last year. Graphs showing offtake and prices are given below;



Source: NFDC

Irrigation Water Supplies Situation during April-September 2022

As per report of IRSA, during Kharif 2023-24 (April-September 2023), total irrigation water supply was 61.84 MAF against last year's irrigation supply of 43.27 MAF up by 42.92 percent. Graphical view for yearly comparative month-wise actual irrigation supply by IRSA is as follow;



Source: IRSA

Cotton Crop 2023-24

Cotton crop picking was at its peak during the month of September. During current year, increase in cotton sowing was observed in Bahawalpur Division in Punjab and in major cotton growing districts of Sindh province. However, a decrease was observed in Multan division and districts of Central Punjab. Increasing trend of sesame and Autumn Maize crop was observed in parts of Central and Southern Punjab.

FCA in its meeting held on 12th April, 2023 fixed target of cotton crop production at 12.770 million bales with an area of 2767.0 (000) hectares. Province-wise targets are as under;

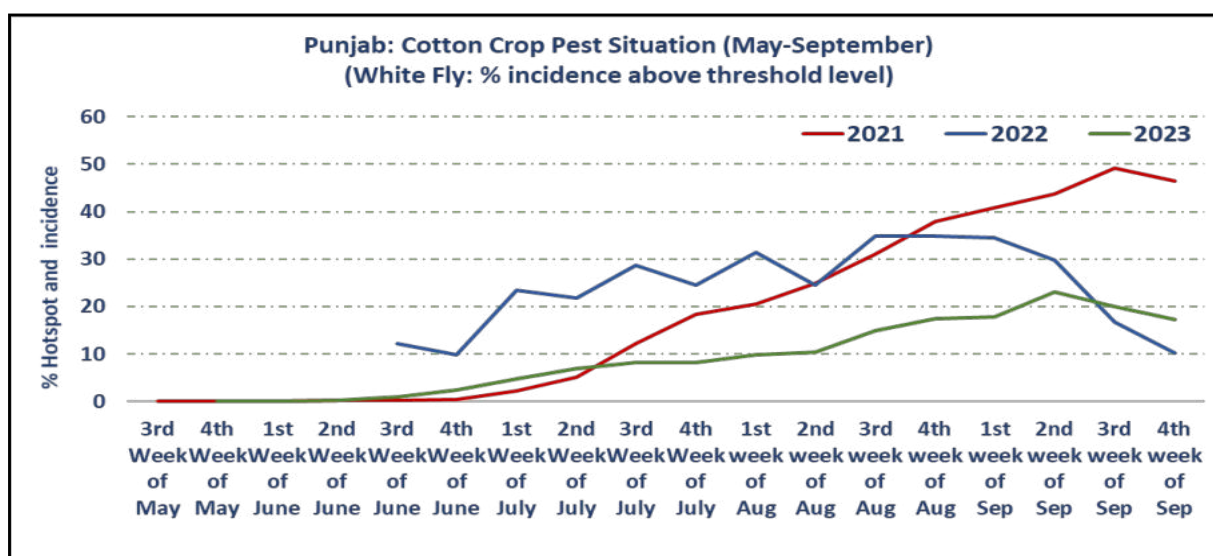
Province	Area (Million ha)	Yield (kg/ha)	Production (Million bales)
Punjab	2.018	702	8.336
Sindh	0.671	1013	4.000
Khyber Pakhtunkhwa	0.002	336	0.004
Balochistan	0.073	998	0.430
Pakistan	2533.3	785	12.770

As per report of Pakistan Cotton Ginning Association (PCGA) on 1st October 2023, cotton arrivals in ginning factories of Pakistan were 5025.282 thousand bales as compared to 2936.153 thousand bales showing an increase of 71.15 percent. In Punjab the cotton arrivals during the reported period were higher by 33.89 and 112.57 percent in Sindh, as compared to the same period of last year. The details of cotton arrivals are given below:

Province	2023	2022	Difference	
	(000 Bales)		Percent	
Punjab	2069.433	1545.632	523.801	33.89
Sindh	2955.849	1390.521	1565.328	112.57
Total	2936.153	3846.463	-910.310	23.67

Source: PCGA

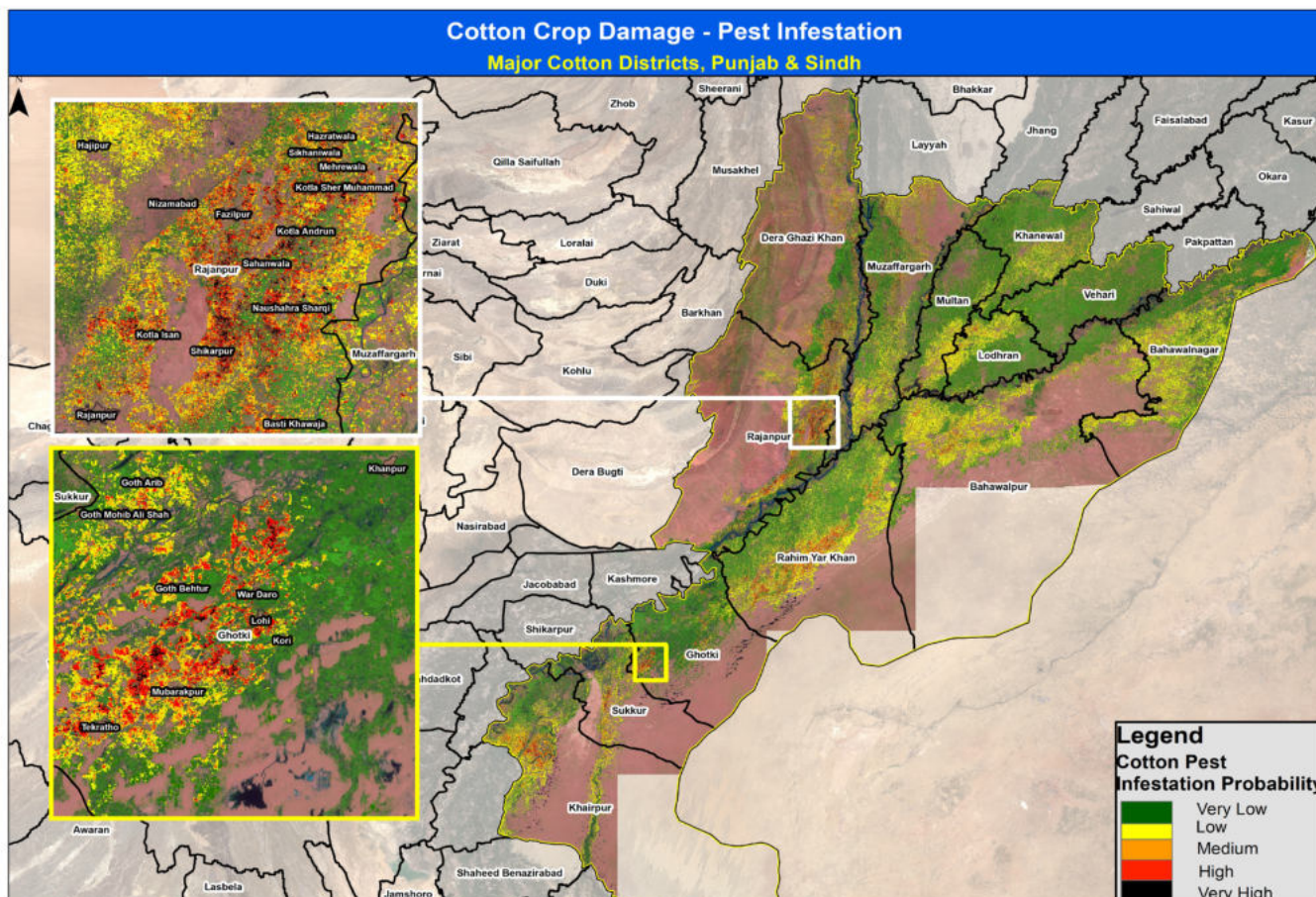
Cotton crop was generally satisfactory during current season. Weather remained favorable for crop growth with no or least climatic hazard, resulting in increased yield over last year. Generally, less pest pressure was observed than last year. However sporadic attack of Jassid and Thrips was reported in early growth phase of crop during month of June and July. According to Pest Warning Department Punjab, white fly infestation remained under control upto mid August 2023. Increasing attack of white fly and pink boll worm was observed in Punjab during September 2023 but the level of infestation above ETL was less than last year. Infestation of sucking insects was higher during June-July 2023 with less level than last year. Situation of Punjab province in comparison to last year is given below;



Source: DG Pest Warning & Quality Controls of Pesticides, Punjab

CROPS SITUATION

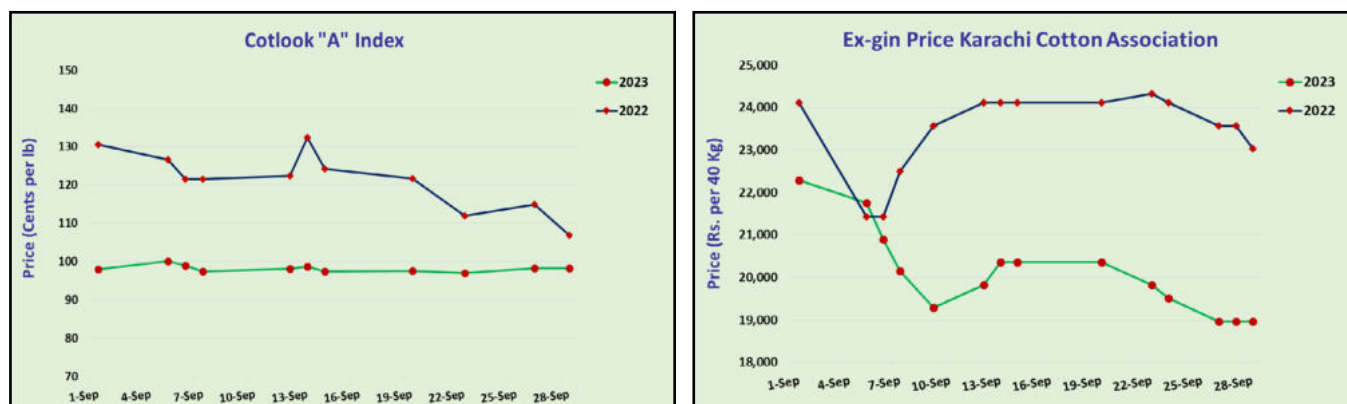
Wide spread pest infestation hotspots with high probability of infestation were visible in Districts of Dera Gazi Khan, Rajan Pur, Rahim yar khan, Ghotki, Khairpur. Satellite based vegetaion anlysis for cotton crop revealed possible significant green biomass loss on 20th September 2023 as shown below;



Market Prices of Cotton during September 2023

In the international market, average cotton price during September 2023 was 98.19 cents per lb as compared to average price of 121.36 cents per lb during September 2022, showing a decrease of 23.17 cents per lb (down by 23.60 percent).

In local market, average ex-gin cotton price during September 2023 was decreased by about 16.55 percent compared to September 2022. Approximate average ex-gin price during September 2023 was Rs. 20109.50 per 40 kg against Rs. 23439.5 during September 2022 showing a decrease of Rs.3329.9 per 40 kg.



Source: PCCC

Keeping in view this decreasing price situation, Government must ensure the enactment of announced support price at Rs. 8500 per 40 Kg of seed cotton (phutti) for better economic returns to meet the expenditure incurred on crop inputs such as fertilizers and pesticides application. This may not only encourage farmers to get additional pickings on termination phase of crop but also gives confidence for sowing of next year crop.

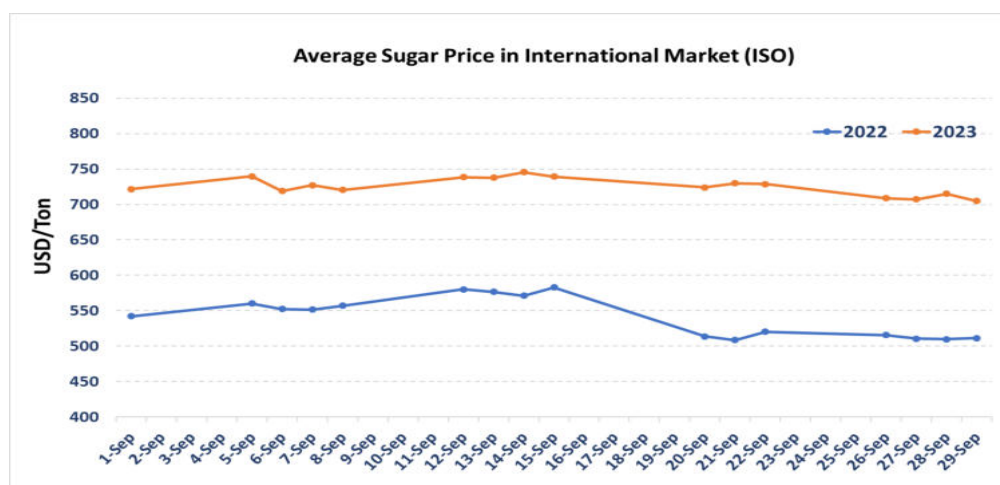
Sugarcane Crop 2023-24

Sugar is a daily consumable commodity in Pakistan. Sugarcane being the major source of sugar production remains under consideration of relevant government departments. Federal Committee on Agriculture (FCA) in its meeting held on 12th April 2023 fixed target of sugarcane crop production at 78.588 million tons from an area of 1181.90 thousand hectares with an average yield of 66.49 tons per hectare for Kharif 2023-24. Province-wise targets are as under;

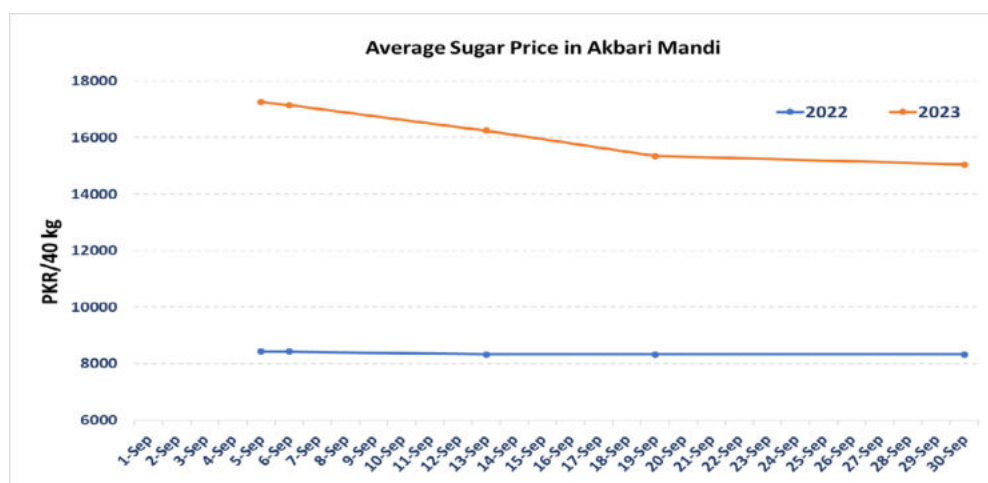
Province	Area (000 ha)	Yield (Tons/ha)	Production (Million Tons)
Punjab	760.8	69.00	52.50
Sindh	310.0	64.35	19.95
Khyber Pakhtunkhwa	110.1	55.28	6.09
Balochistan	1.0	52.50	0.05
Pakistan	1181.9	66.50	78.59

Sugar price in the international market (White Sugar Price Index) during September 2023 was approximately 33.95 Percent higher compared to September 2022. Average sugar price during September 2023 was USD 725.478 per ton against the average sugar price of USD 541.581 per ton during September 2022, showing average increase of USD 183.89 per ton.

Sugar prices in the local market (Akbari Mandi) also remained lower during September 2023 as compared to September 2022. Average sugar price during September 2023 was around Rs. 16210.00 per 100 kg as against the average sugar price of Rs. 8367.00 per 100 kg showing an increase of around Rs.7843.00 per 40 kg (Up by approx. 93.73 percent). Graphs showing daily white sugar price index in the International market (International Sugar Organization) and daily average sugar price in the local market (Akbari Mandi) are given below:



Source: ISO



Source: khistock

Rice Crop 2023-24

Rice particularly of basmati transplantation / sowing operations ended during the month of August. Rice transplantation remained at peak during July with late transplantation during August. Rice was at varying growth stages from transplantation to maturity / grain formation depending upon sowing timelines.

In Pakistan rice cultivation is increasing over last few years due to better market prices and economic return. Last year rice production was affected by floods. Rice is the major export commodity for Pakistan adding foreign exchequer. Pakistan rice exports showed a decrease of 23.8 percent in terms of quantity and 14.4 percent in terms of value during 2022-23 in comparison to 2021-22. Table showing comparison of basmati and other rice varieties exports during the financial years 2022-23 and 2021-22 are given below;

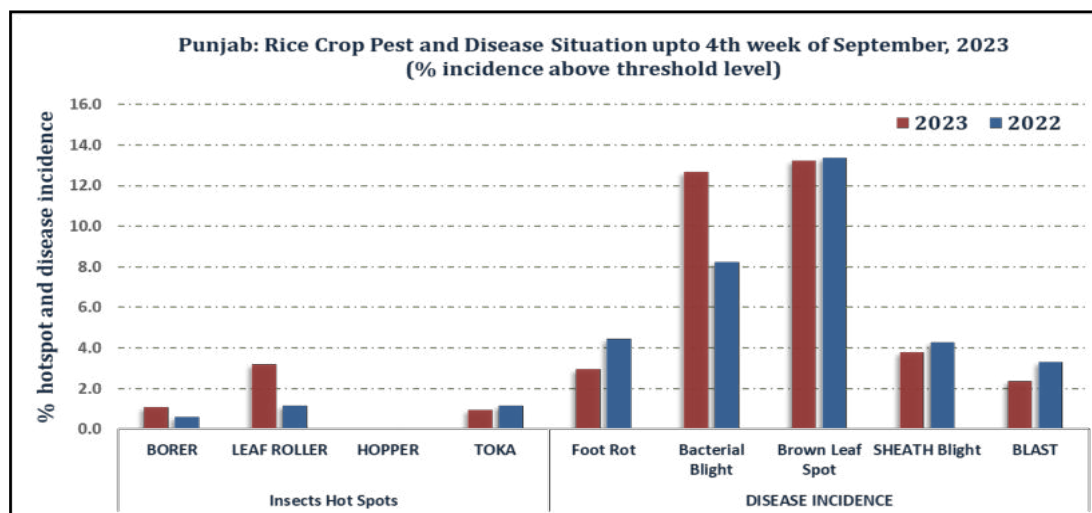
Pakistan Rice Exports (July-June) Comparison						
Rice Type	Quantity (Tons)			Value (USD)		
	2022-23	2021-22	% difference	2022-23	2021-22	% difference
Basmati	595	751	-20.7	650	693	-6.2
Others	3122	4127	-24.3	1499	1816	-17.5
Total	3718	4877	-23.8	2149	2509	-14.4

Source: TDAP

Federal Committee on Agriculture (FCA) in its meeting held on 12th April 2023 fixed rice crop target at 9.041 million tons from an area of 3069.90 thousand hectares with an average yield of 2945.9 Kg per ha for the year 2023-24.

Province	Area (000 ha)	Yield (kg/ha)	Production (000 Tons)
Punjab	2023.4	2441.0	4939.2
Sindh	800.0	4134.4	3307.5
Khyber Pakhtunkhwa	66.5	2668.4	177.45
Balochistan	180.0	3430.0	617.4
Pakistan	3069.9	2945.2	9041.6

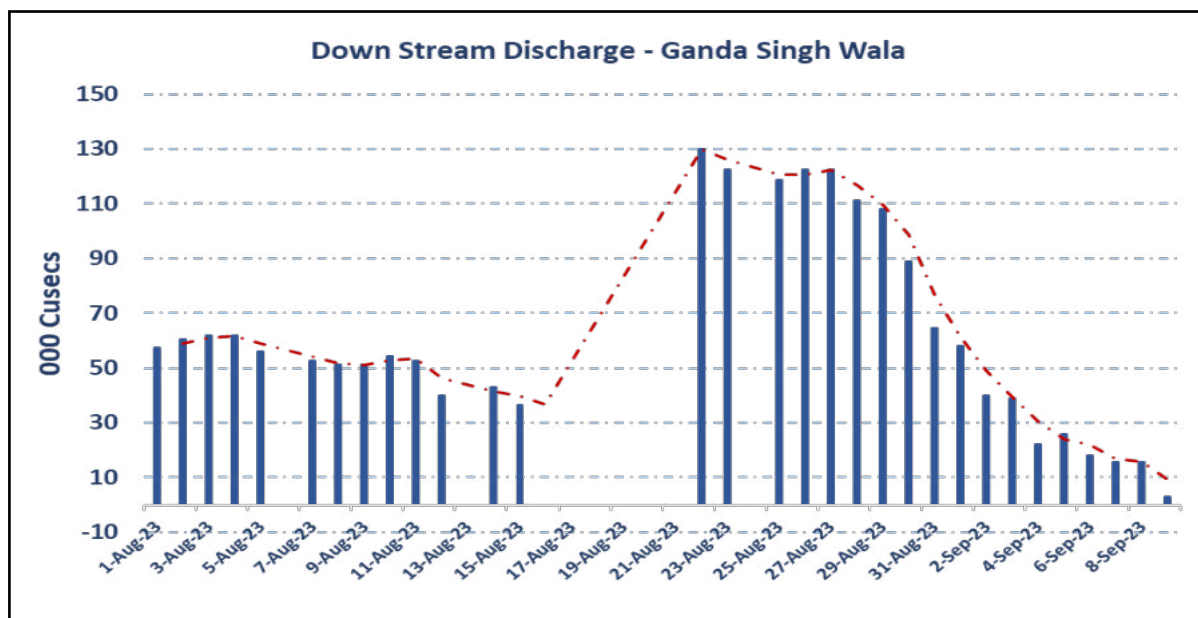
Rice sown area has increased this year compared to last year. Rice sowing operations ended during the month of August particularly Basmati varieties. By the end of September, rice crop was at maturity / grain formation depending upon sowing timelines. Generally, rice crop growth was satisfactory. Insect pest infestation was generally less than last year. However, increased infestation of Bacterial Leaf Blight was observed in Gujranwala, Sialkot, Hafizabad and Narowal areas as compared to last year. Sporadic infestation of Bacterial leaf Spot was observed particularly in areas of Narowal, Gujrat, Sargodha, Bahawalnagar and Rahim yar Khan Districts. The rice pest situation in Punjab province upto 4th week of September, 2023 is as below;



Source: Pest Warning & Quality Controls of Pesticides, Punjab

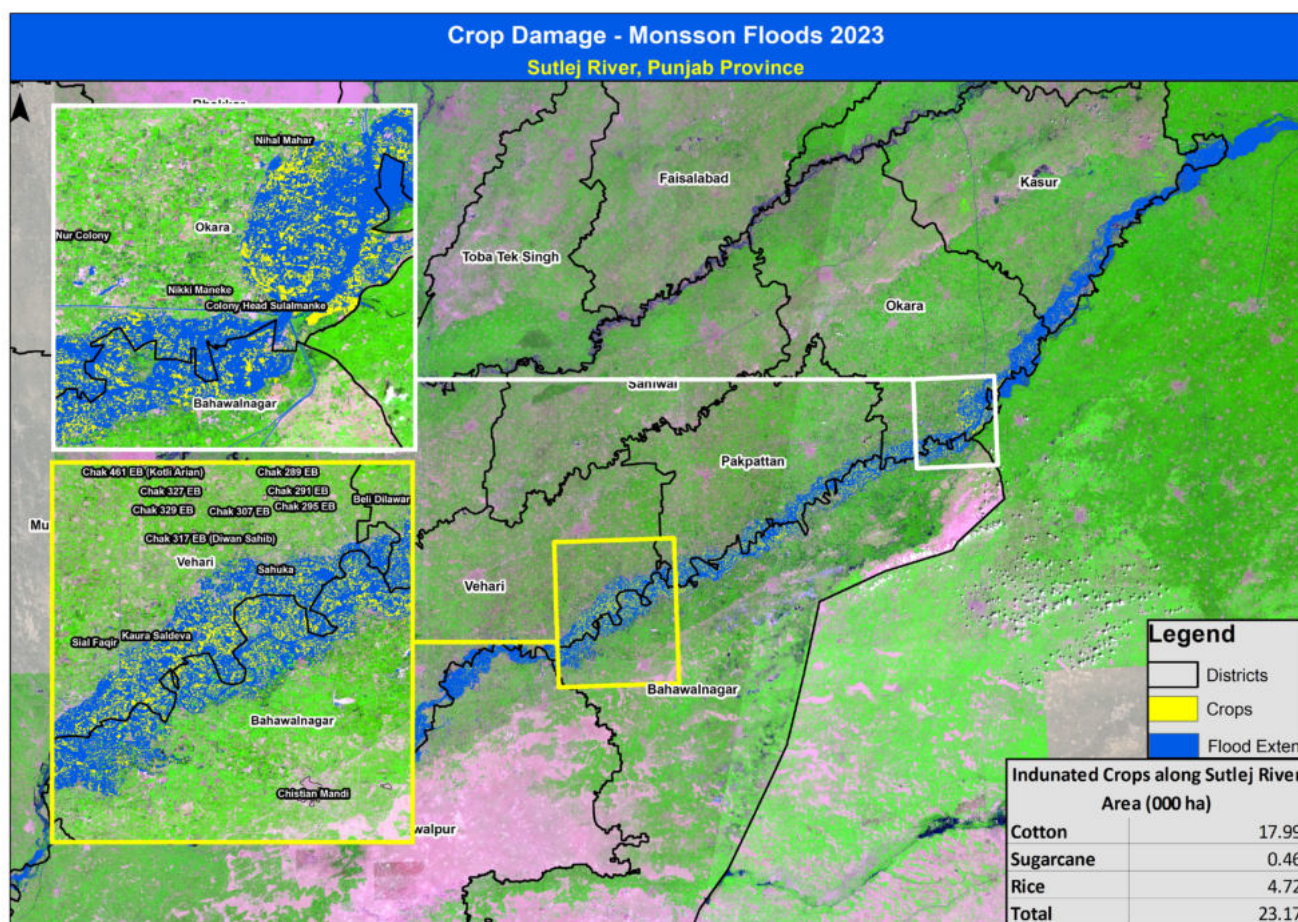
Floods 2023: Crops Damage Assessment

During August 2023, high floods were reported in Sutlej River in Pakistan due to release of excessive water by India. The high flood destroyed levees, villages at several places and inundating standing crops. Figure showing daily down stream water discharge at Ganda Sindh Wala along Sutlej River is given below;



Source: PDMA

SUPARCO carried out crops damage assessment using multi date satellite imagery. Map showing extent of inundation and affected agriculture along Sutlej River is given below



Irrigation Water Supply: September, 2023

The irrigation water supply during September 2023 was 13.97 MAF against the last year's supply of 8.40 MAF, higher by 5.57 MAF (66.30 percent). During September 2023, as compared to the same period of last year, the supply in Punjab was 6.94 MAF (higher by 12.73 percent), Sindh was 6.42 (higher by 192.68 percent), Khyber Pakhtunkhwa was 0.15 MAF (higher by 400.0 percent) while Balochistan received water supply 0.46 MAF (higher by 2220.0 percent).

	Month	Year	Punjab			Sindh	KP	Balochistan	Total
			Jhelum-Chenab	Indus	Total				
			Million Acre Feet						
Kharif 2022-23	April	2023	1.42	1.04	2.46	1.78	0.09	0.00	4.32
		2022	1.73	0.98	2.72	1.39	0.17	0.00	4.28
		Change	-0.31	0.06	-0.26	0.39	-0.08	0.00	0.05
		% change	-18.00	6.05	-9.48	28.00	-49.41	0.00	1.11
	May	2023	2.47	2.15	4.62	2.25	0.13	0.04	7.05
		2022	2.36	1.91	4.26	2.10	0.19	0.08	6.63
		Change	0.12	0.24	0.36	0.16	-0.06	-0.04	0.41
		% change	4.90	12.71	8.39	7.58	-31.51	-54.17	6.22
	June	2023	2.63	2.37	5.00	3.76	0.16	0.28	9.20
		2022	2.23	1.53	3.76	3.02	0.19	0.26	7.22
		Change	0.41	0.83	1.24	0.74	-0.02	0.02	1.98
		% change	18.25	54.33	32.96	24.57	-12.77	8.53	27.41
	July	2023	2.67	3.04	5.71	6.64	0.14	0.37	12.86
		2022	2.59	1.99	4.57	4.44	0.13	0.30	9.45
		Change	0.08	1.05	1.13	2.20	0.01	0.07	3.41
		% change	3.15	52.77	24.77	49.46	7.98	24.87	36.12
	August	2023	3.11	3.58	6.69	7.15	0.19	0.42	14.44
		2022	2.84	1.83	4.66	2.42	0.05	0.15	7.28
		Change	0.27	1.75	2.03	4.72	0.14	0.28	7.16
		% change	9.63	95.99	43.45	194.89	255.56	187.57	98.28
	September	2023	3.28	3.66	6.94	6.42	0.15	0.46	13.97
		2022	3.25	2.91	6.16	2.19	0.03	0.02	8.40
		Change	0.03	0.76	0.78	4.23	0.12	0.44	5.57
		% change	0.79	26.08	12.73	192.68	400.00	2220.00	66.30
	Total	2023	15.58	15.84	31.42	28.00	0.86	1.57	61.85
		2022	14.99	11.15	26.14	15.56	0.76	0.80	43.27
		Change	0.59	4.69	5.28	12.44	0.10	0.77	18.58
		% change	3.94	42.12	20.21	79.91	12.93	95.84	42.95

Source: Indus River System Authority (IRSA)

Fertilizer Offtake

As per report of NFDC, the month of August 2023 started with opening inventory of 175 thousand tons of Urea. During August 2023, domestic Urea production was 563 thousand tons with total availability of 739 thousand tons. Urea offtake during August remained 650 thousand tons leaving behind closing balance of 88 thousand tons.

The opening inventory of DAP for August 2023 was 237 thousand tons. During August 2023 domestic production of DAP was 638 thousand tons. The total availability of DAP was 306 thousand tons. DAP offtake during August 2023 was 263 thousand tons leaving behind closing balance of 40 thousand tons.

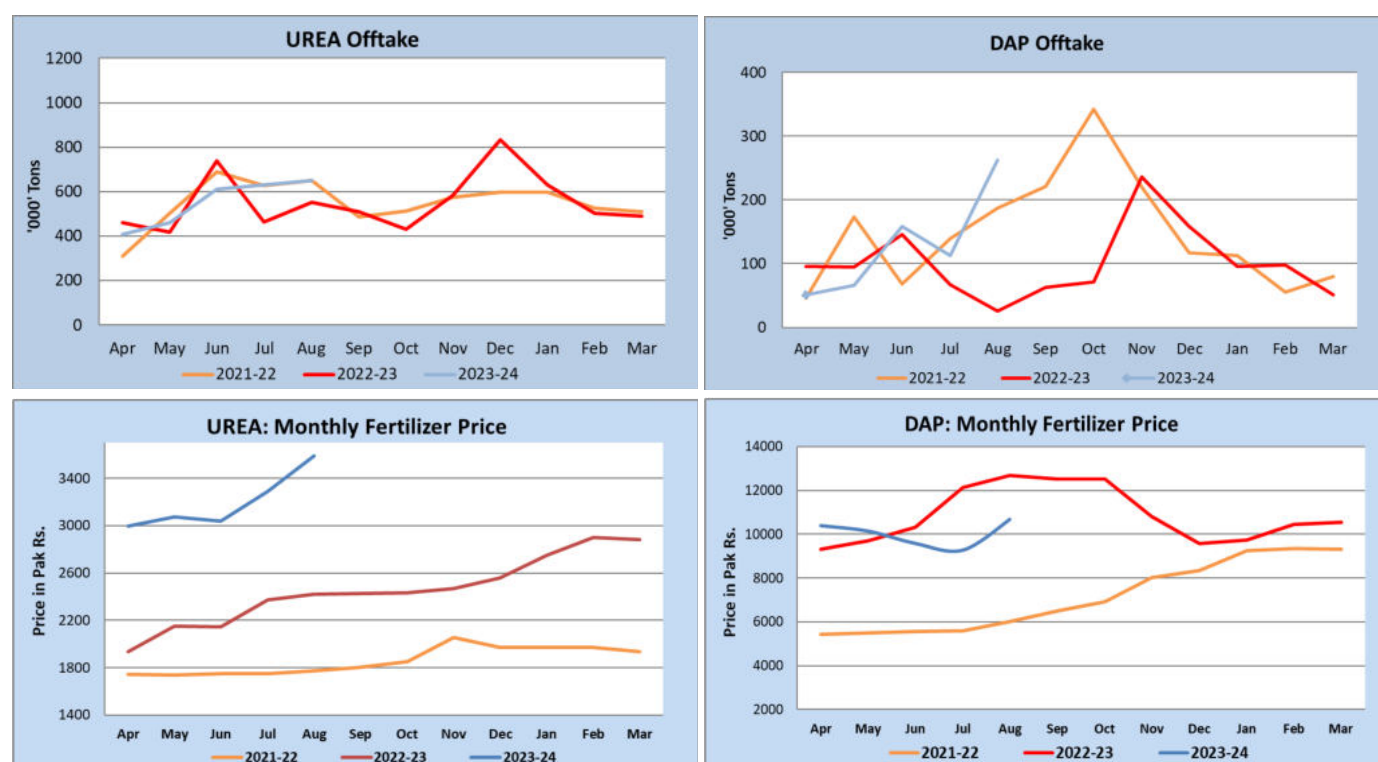
During August 2023, offtake of Nitrogen, Phosphate and Potash increased by 51.7, 985.1 and 1028.1 percent respectively, as compared to same period of last year.

Product	Opening Inventory	Domestic Production	Imports	Total Availability	Offtake	Write On/Off	Closing Balance
000 Tons							
Urea	205	541	0	745	552	2	195
DAP	374	77	0	451	26	1	426

Month	Fertilizer Offtake Kharif 2023-24				Fertilizer Offtake Kharif 2022-23				% Change			
	Nitrogen	Phosphate	Potash	Total	Nitrogen	Phosphate	Potash	Total	Nitrogen	Phosphate	Potash	Total
	(000 Tons)											
Apr	159.7	60.0	2.7	222.3	192.5	41.9	4.8	239.3	-17.1	42.9	-44.0	-7.1
May	238.9	60.5	2.7	302.1	293.0	90.1	3.4	386.4	-18.5	-32.9	-19.1	-21.8
Jun	398.9	80.7	3.0	482.7	365.0	42.2	4.2	411.4	9.3	91.2	-27.9	17.3
Jul	261.6	46.7	1.5	309.8	344.2	80.1	3.8	428.0	-24.0	-41.7	-61.0	-27.6
Aug	283.2	17.2	0.7	301.1	374.3	110.0	10.8	495.1	-24.3	-84.4	-93.6	-39.2

Source: MRR.09/2023 NFDC

The fertilizer statistics and prices are depicted in the graphs below:



Source: MRR.09/2023 NFDC

زرعی سفارشات

اکتوبر

کپاس:-

- 1۔ چنائی کے بعد پھٹی کو ایک یا دو دوپ ضرور لگوائیں۔ تاکہ ذخیرہ کرتے ہوئے پھٹی میں نمی کا تناسب 8 سے 10 فیصد تک ہو۔ زیادہ نمی پھٹی کے معیار کو متاثر کرتی ہے۔
- 2۔ کپاس کے معیار کو عالمی سطح کے مطابق رکھنے کے لیے مندرجہ ذیل اقدامات کیے جائیں۔
 - چنائی سے لیکر ذخیرہ کرنے تک کپاس کو آلائشوں مثلاً نمی، سر کے بال، رسیاں، خشک پتے وغیرہ سے صاف رکھا جائے۔
 - چنائی اور ترسیل کے دوران صرف اور صرف سوئی کپڑا استعمال کیا جائے۔
 - چنائی کو اقسام کے لحاظ سے الگ الگ ذخیرہ کریں۔
 - چنائی 40 سے 50 فیصد غینڈے پوری طرح کھل جانے پر شروع کریں اور چنائی کا آغاز اس ختم ہونے پر کریں۔
 - آخری چنائی کی پھٹی کم معیار کی ہوتی ہے۔ اس لیے اس کو الگ رکھیں۔

دھان:-

- 1۔ کھیت میں پتہ لپیٹ سٹڈی یا پچھیتی اقسام پر بیماریوں کے حملہ کی صورت میں مقامی محکمہ زراعت کے مشورے سے مناسب زہروں کا استعمال جاری رکھیں۔
- 2۔ باسستی اقسام میں دانہ بھرتے وقت پانی کی کمی نہ آنے دیں نیز کٹائی سے 15 دن پہلے آخری پانی لگادیں۔
- 3۔ دھان کی کٹائی کے لیے ایسی کمبائن ہارویسٹر استعمال کریں۔ جس میں دھان کی کٹائی کے لیے ایڈجسٹ ہو۔

4۔ فصل کی کٹائی اور پھنڈائی کا عمل روزانہ کی بنیاد پر مکمل کریں۔

کماؤ:-

- 1۔ ستمبر کاشت جلد از جلد مکمل کریں۔ تاخیر سے کاشت پیداوار میں کمی کا باعث بنتی ہے۔
- 2۔ درمیانی زرخیز زمین کے لیے سواتین بوری بوری، دو بوری ڈی اے پی اور دو بوری پوناش استعمال کریں۔ زمین کی زرخیزی کو مد نظر رکھتے ہوئے کھادوں کی مقدار میں کمی بیشی کا جاسکتی ہے۔
- 3۔ فاسفورس اور پوناش کھادوں کا استعمال بوقت بجائی کریں جبکہ ستمبر کاشتہ کماؤ میں یوریا تین اقساط (نومبر، مارچ اور اپریل) میں ڈالیں۔
- 4۔ موسمی حالات اور فصل کی ضرورت کے مطابق آبپاشی کا عمل جاری رکھیں۔

گندم:-

- 1۔ بارانی علاقوں میں بارش کی صورت میں گہراہل چلا کر وتر محفوظ رکھنے کے لیے مناسب اقدامات کئے جائیں۔
- 2۔ زمین کی تیاری کریں اور اگر گلی سڑی کھاد میسر ہو تو وہ زمین میں ملا دیں۔
- 3۔ بارانی علاقوں کے لیے محکمہ زراعت کی تجویز کردہ/منظور شدہ اقسام مثلاً دھراہلی 2011، فتح جنگ 2016 اور بارانی 2017 وغیرہ کاشت کریں۔ اسی طرح آبپاشی علاقوں کے لیے مخصوص منظور کردہ اقسام کا انتخاب مقامی زراعت کے مشورے سے کریں۔
- 4۔ بجائی کا عمل 15 نومبر تک مکمل کرنے کی بھرپور کوشش کی جائے۔ بروقت کاشت گندم کی زیادہ پیداوار کے لیے کلیدی عنصر ہے۔
- 5۔ 85 فیصد اگاؤ کی صلاحیت والا 50 کلو گرام بیج فی ایکڑ استعمال کریں۔ کم اگاؤ کی صورت میں شرح بیج میں مناسب اضافی کریں۔
- 6۔ کاشت سے پہلے بیج کو پھپھوندی کش زہر لگائیں تاکہ فصل بیماری سے محفوظ رہے۔



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