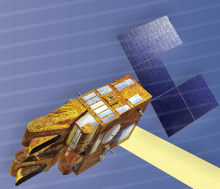




MINISTRY OF NATIONAL  
FOOD SECURITY AND  
RESEARCH



**SUPARCO**



# PAK-SCMS

**BULLETIN**

PAKISTAN: SATELLITE BASED CROP MONITORING SYSTEM

Volume XI, Issue 09, Serial No. 129 1-September 2021

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.

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## CROP SITUATION: AUGUST 2021

### Summary

By the end of August 2021, values of Normalized Difference vegetation Index (NDVI) show active growth of Kharif season crops. Generally, above normal day time temperatures were observed in most parts of the country. 3-4 rain spells with below normal precipitation were received in parts of Punjab, Khyber Pakhtunkhwa, Gilgit-Baltistan and Azad Jammu & Kashmir. 3-4 rain spells with very light rain were observed in Sindh and Balochistan except few places in Balochistan with light to moderate rain.

The month of August becomes important for cotton crop as picking season kicks off in most parts of Sindh and few areas of Punjab. Hot and humid weather conditions make conducive environment for insects, pests and disease multiplication and flare-up. According to Pest Warning Department Punjab, by the end of August, increased sporadic attack/infestation of insect pests particularly White fly, Mealy Bug, Pink Bollworm and CLCV were reported in some areas of Punjab.

Satellite based early season assessment of

cotton crop up to mid-July, 2021, shows decreasing trend in cotton crop area sown. As per reports of Pakistan Central Cotton Committee (PCCC), upto 07th July, 2021, the total area sown at National level is 1.871 million hectares, approximately 13.4 percent less than the same period of last year. Punjab has achieved 79.4 percent of its targets with sowing of 1.279 million hectares of cotton. In Sindh, area sown is 0.592 million hectares resulting in achievement of 93.0 percent of the target.

As per report of Pakistan Cotton Ginning Association (PCGA) on 1st September 2021, cotton arrivals in ginning factories of Pakistan were 1791.125 thousand bales. On 1st September 2020 data was not collected. However, arrivals on 1st September, 2019 were 1355.710 thousand bales showing an increase of 435.4 thousand bales (24.3 Percent) for current year.

In local market, average ex-gin cotton price during August 2021 was higher by about 38.26 percent compared to August 2020. Approximate average ex-gin price



## CROPS SITUATION

during August 2021 was Rs. 14423.7 per 40 kg against Rs. 9217.0 during August 2020 showing an increase of Rs. 5518.4 per 40 kg.

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.

Transplantation of basmati rice has been completed during August and is at varying growth stages depending upon sowing time and type. Harvesting of early sown IRRI rice has been started with peak vegetative growth for late sown crop.

As per report of Indus River System Authority (IRSA) for August 2021, the irrigation water supply was 14.40 MAF against the last year's supply of 11.99 MAF, increased by 20.11 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 June 2021 was 1124 thousand tons whereas total availability of DAP was 415 thousand tons. During June 2021, off take of Nitrogen, Phosphate and Potash decreased by 39.3, 56.0 and 11.0 percent respectively, as compared to the same period of last year.



Normalized Difference Vegetation Index (NDVI) 31<sup>st</sup> August, 2021

# Kharif Crops 2021-22

## Cotton Crop 2021-22

Federal Committee on Agriculture (FCA) in its meeting held on 08<sup>th</sup> April, 2021 fixed target of cotton crop production at 10.504 million bales with an area of 2330.91 (000) hectares. Province wise targets are as under:

Province	Area (000 ha)	Yield (kg/ha)	Production (Million Bales)
Punjab	1618.71	637.00	6.07
Sindh	640.00	1063.00	4.00
Khyber Pakhtunkhwa	2.20	322	0.004
Balochistan	70.00	1044	0.43
Pakistan	2330.91	766	10.504

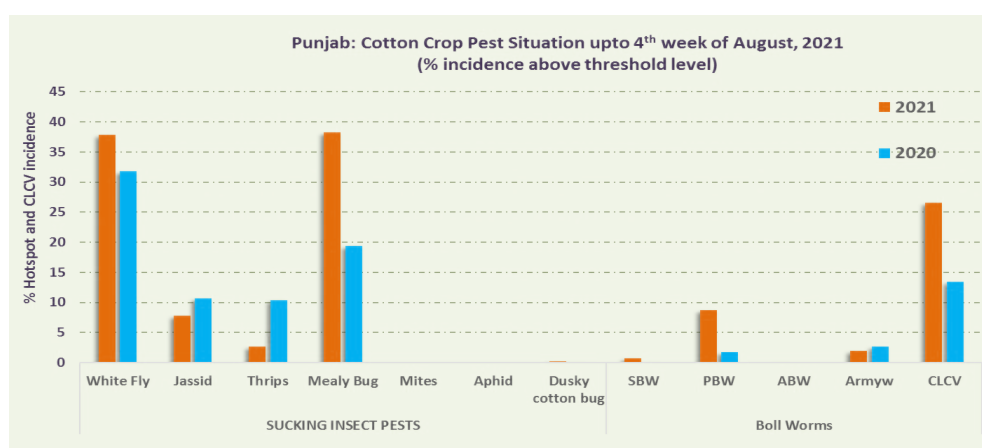
Source: FCA

As per reports of Pakistan Central Cotton Committee (PCCC), upto 30th June, 2021, the total area sown at National level is 1.812 million hectares, approximately 16.1 percent less than the same period of last year. Punjab has achieved 79.4 percent of its targets with sowing of 1.279 million hectares of cotton. In Sindh, area sown is 0.533 million hectares resulting in achievement of 83.0 percent of the target.

Using satellite remote sensing data up to mid-July, 2021, early season assessment of Cotton crop (2021-22) also shows decreasing trend particularly in districts where maize is grown on significant area. Reason for this decrease could be cotton being a high risk crop due to its low yield and failures in past years and above all low net returns as compared to maize crop.

By end of August, 2021 cotton crop condition was generally satisfactory. As per report of Pakistan Cotton Ginning Association (PCGA) on 1st September 2021, cotton arrivals in ginning factories of Pakistan were 1791.125 thousand bales. During 1st September 2020 data was not collected. However, arrivals on 1st September 2019 were 1355.710 thousand bales showing an increase of 435.4 thousand bales (24.3 Percent) for current year.

The month of August becomes important for cotton crop as picking season kicks off in most of Sindh and few areas of Punjab. Hot and humid weather conditions make conducive environment for insects, pests and disease multiplication and flare-up. According to Pest Warning Department Punjab, by the end of August, increased sporadic attack/infestation of insect pests particularly White fly, Mealy Bug, Pink Bollworm and CLCV were reported in some areas of the Punjab.



Source: Pest Warning and Quality Control of Pesticides, Punjab

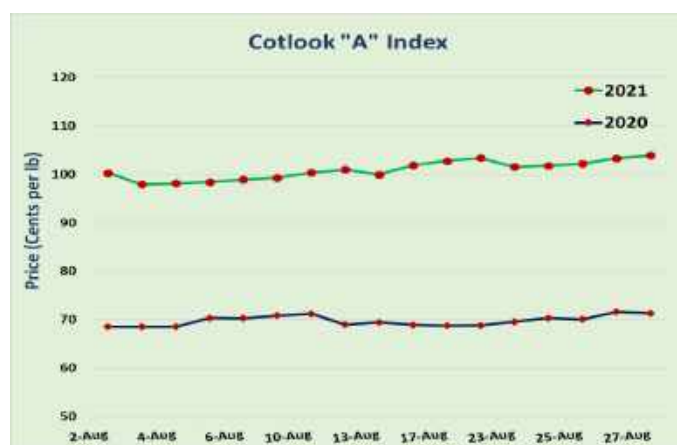
## CROPS SITUATION

Keeping in view the increasing trend of pest infestation at early stage of Cotton crop, farmers and concerned departments need to remain vigilant to control the spread of pests particularly the Pink Bollworm, Jassid and Mealy Bug.

### Market Prices for Cotton during August 2021

In the international market, average cotton price during August 2021 was 100.86 cents per lb as compared to average price of 69.46 cents per lb during August 2020, showing an increase of 31.40 cents per lb (up by 45.21 percent).

In local market, average ex-gin cotton price during August 2021 was higher by about 61.96 percent compared to August 2020. Approximate average ex-gin price during August 2021 was Rs. 14423.7 per 40 kg against Rs. 8905.4 during August 2020 showing an increase of Rs. 5518.4 per 40 kg.



Source: PCCC

## Sugarcane Crop 2021-22

Sugarcane crop growth was generally satisfactory and insect pest situation was also under control except sporadic infestation of white fly in few places of Punjab. 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.

Federal Committee on Agriculture (FCA) in its meeting held on 08<sup>th</sup> April, 2021 fixed target of sugarcane crop production at 74.846 million tons with an area of 1181.91 000 hectares for Kharif 2021-22. Province wise targets are as under:

Province	Area (000 ha)	Yield (Tons/ha)	Production (Million Tons)
Punjab	760.79	65.72	50.00
Sindh	310.00	61.29	19.00
Khyber Pakhtunkhwa	110.12	52.63	5.79
Balochistan	1.00	50.00	50.00
Pakistan	1181.91	63.33	74.846

Source: FCA

Sugar price in the international market (White Sugar Price Index) during August 2021 was approximately 30.17 percent higher compared to August 2020. Average sugar price during August 2021 was USD 485.23 per ton against the average sugar price of USD 372.76 per ton during August 2020, showing average increase of USD 112.47 per ton.

Sugar prices in the local market (Akbari Mandi) also remained higher during August 2021 as compared to August 2020. Average sugar price during August 2021 was around Rs. 10124.47 per 100 kg as against the average sugar price of Rs. 9044.67 per 100 kg showing an increase of around Rs. 1079.81 per 40 kg (approx. 11.93 percent higher).

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: Akbari Mandi



Source: ISO

## Rice Crop 2021-22

Transplantation of basmati rice has been completed during August and is at varying growth stages depending upon sowing time and type. Harvesting of early sown IRRI rice has been started with peak vegetative growth for late sown crop.

Federal Committee on Agriculture (FCA) in its meeting held on 08<sup>th</sup> April, 2021 fixed rice crop target at 8.201 million tons with an area of 3069.92 000 ha for the year 2021-22. Detail of province wise rice crop is as under:

Province	Area (000 ha)	Yield (kg/ha)	Production (Million Tons)
Punjab	2023.39	2214.00	4.48
Sindh	800.00	3750.00	3.00
Khyber Pakhtunkhwa	66.53	2419.00	0.16
Balochistan	180.00	3111.00	0.56
Pakistan	3069.92	2671.00	8.20

Source: FCA

## Water Supply Situation for Kharif 2021-22

By 31st August 2021, water storage level in Tarbela and Mangla reservoir was at level of 1548.88 and 1198.70 ft respectively as compared to 1550.0 and 1241.15 ft for the same period of last year. The comparative satellite images are given below:

Tarbela Reservoir

23<sup>rd</sup> August 2021



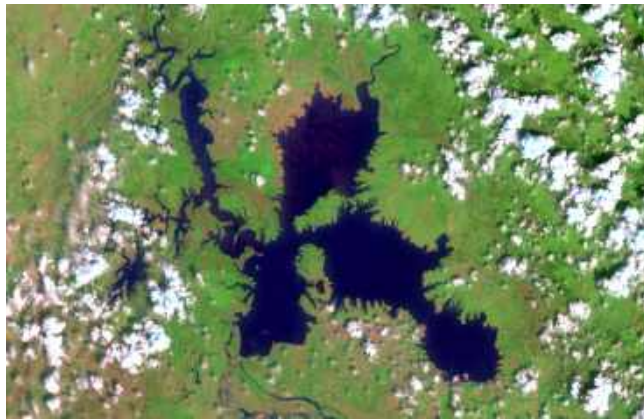
23<sup>rd</sup> August 2020



# CROPS SITUATION

## Mangla Reservoir

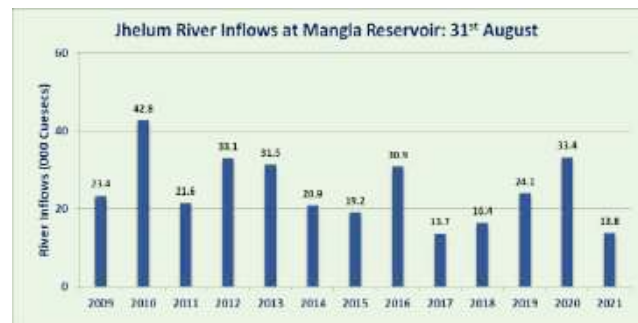
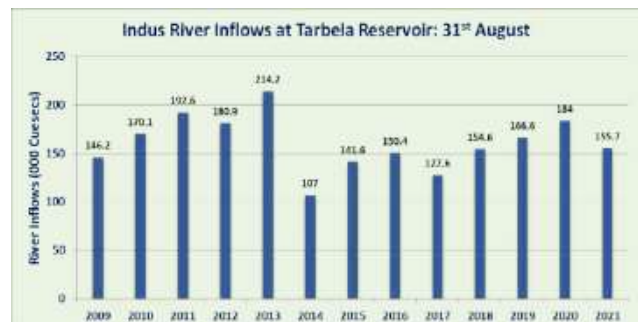
23<sup>rd</sup> August 2021



23<sup>rd</sup> August 2020



The graphs below show the 12 years comparison of reservoir levels and water inflows at reservoir.

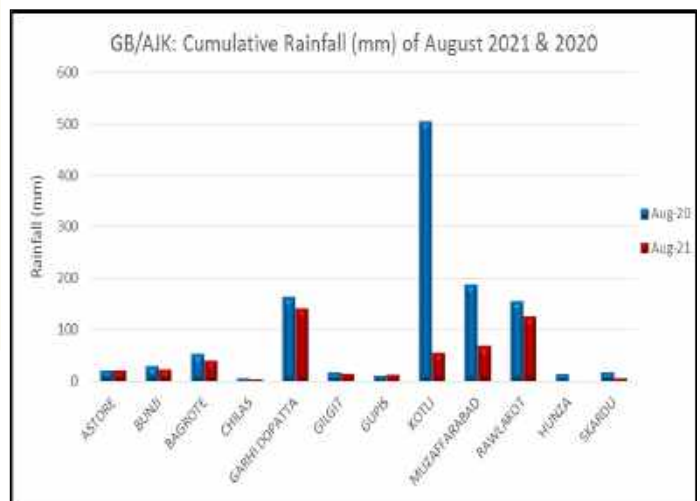
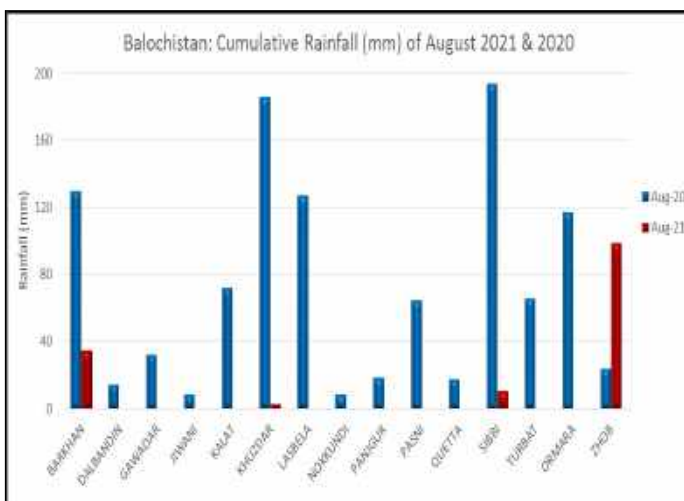
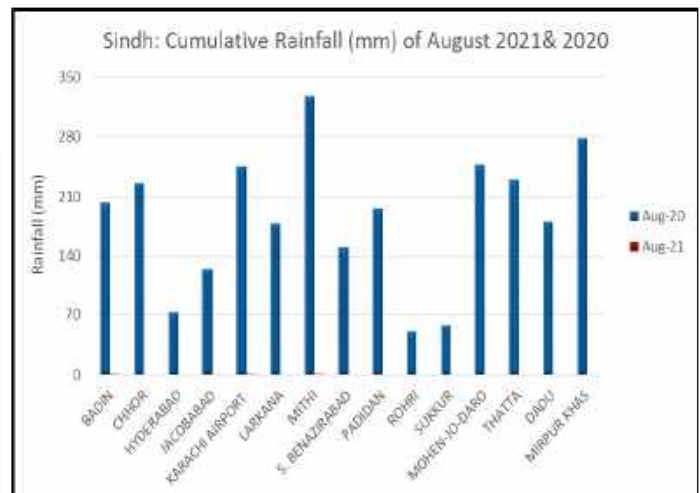
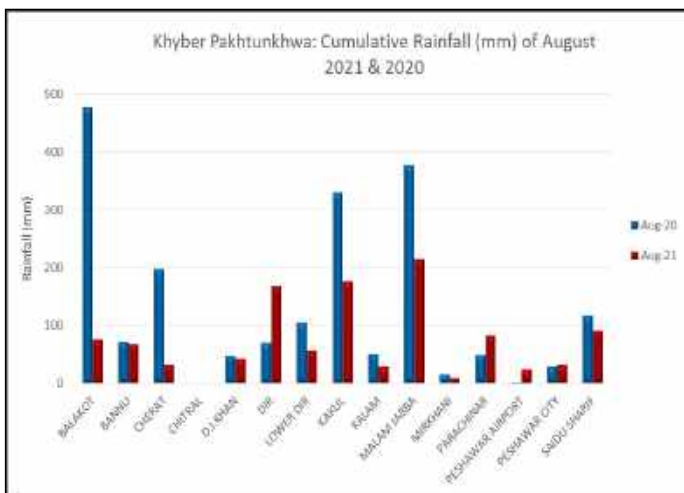
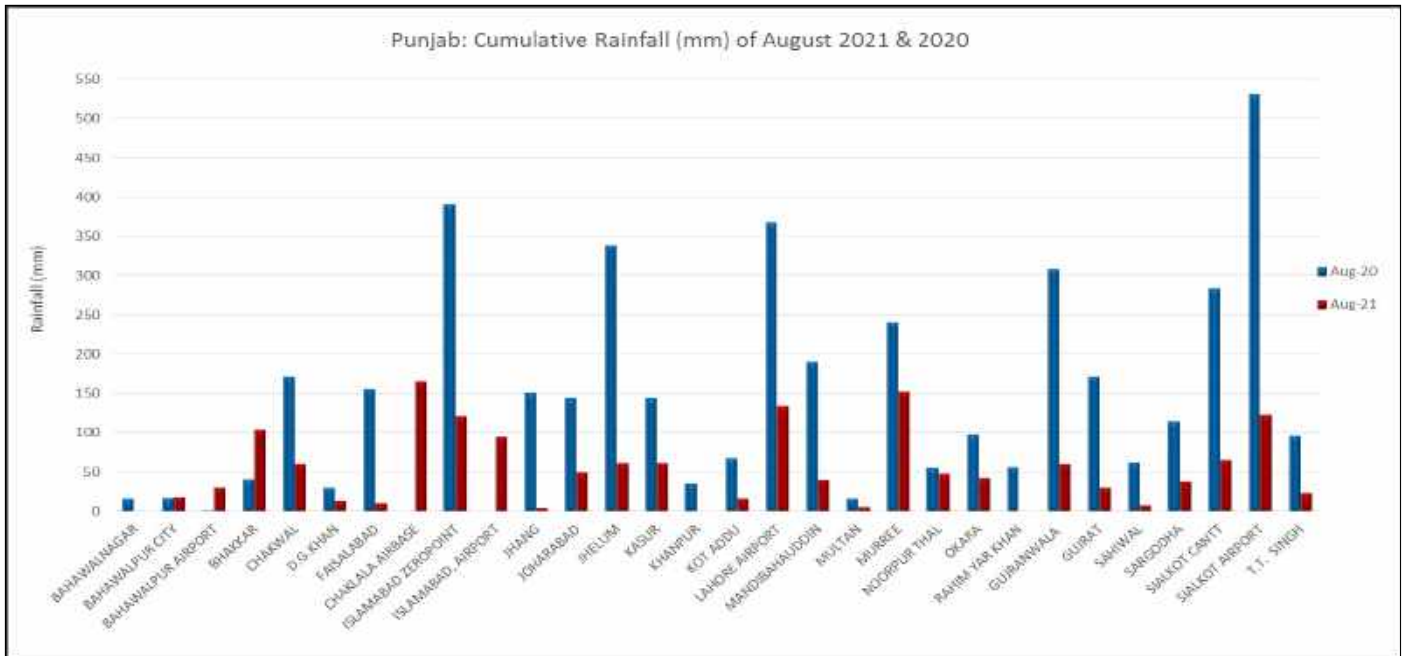


Source: WAPDA

## Actual Irrigation Water Supplies (IRSA)-April-July 2021

As per report of IRSA, during Kharif 2021-22 (April-August 2021), total irrigation water supply was 52.41 MAF against the last year's supply of 55.61 MAF down by 3.2 MAF as compared to last year. This indicates a decrease in irrigation water supply of 5.75 percent compared to last year.

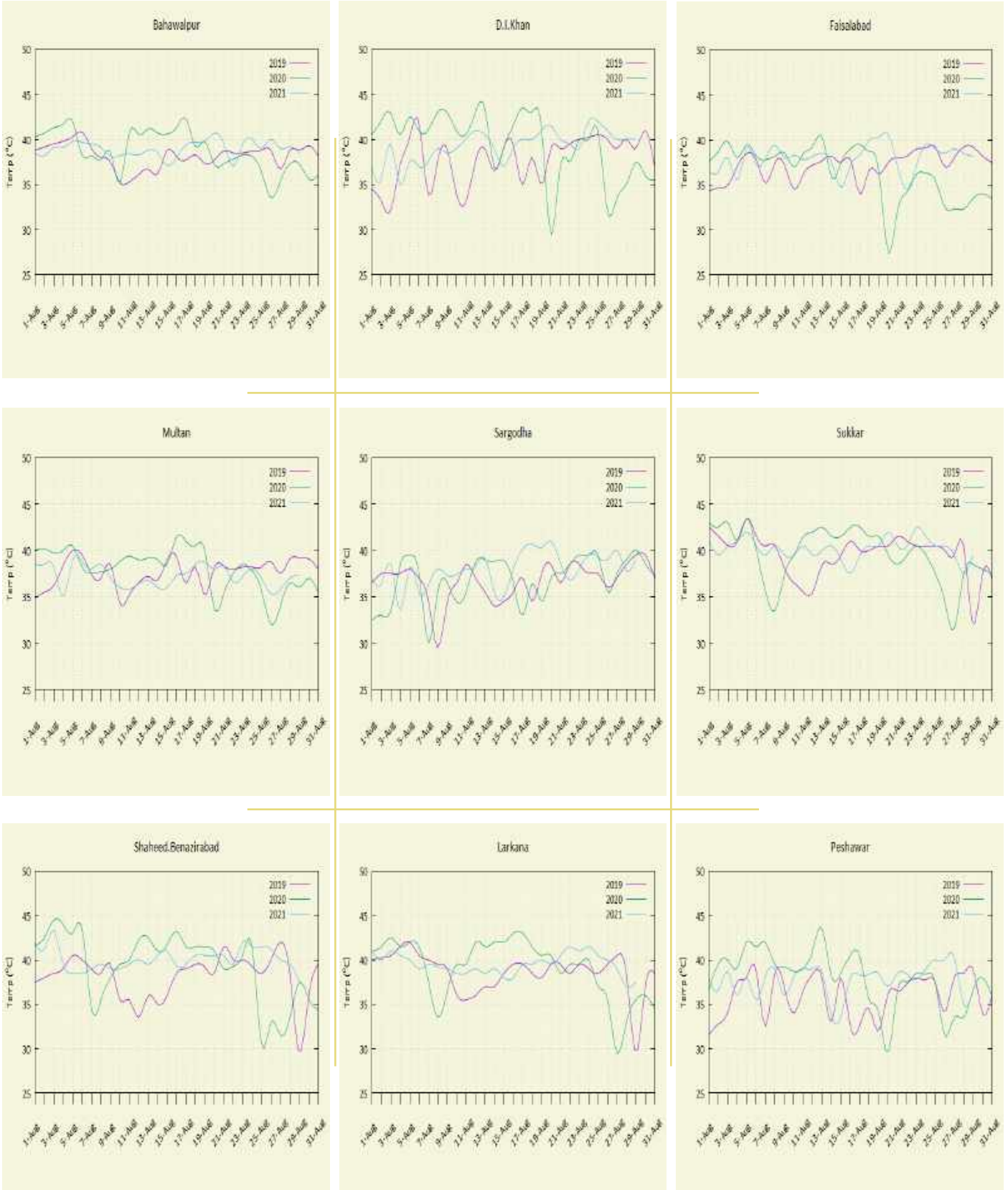
# Monthly Rainfall (mm): August (2020 & 2021)





# Maximum Temperature: August, 2021

The ranges of maximum temperature ( °C ) during August 2021 were as follows:





# Minimum Temperature: August, 2021

The ranges of minimum temperature ( °C ) during August 2021 were as follows:

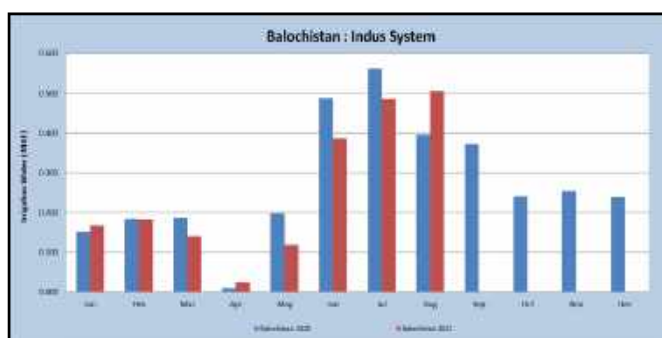
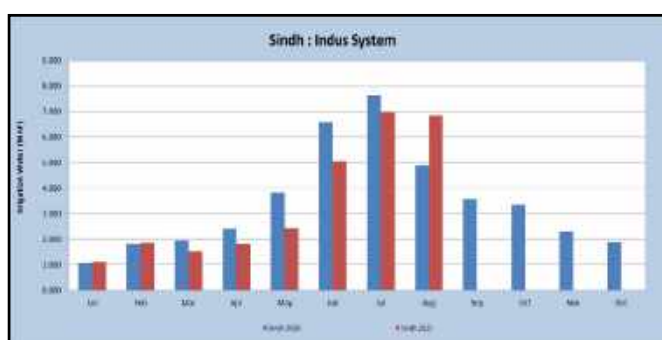
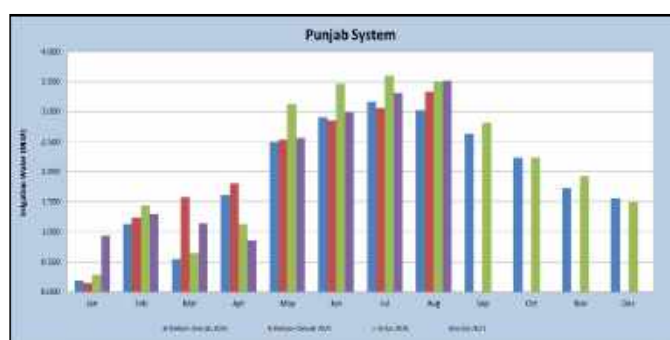


# Irrigation Water Supply: July, 2021

The irrigation water supply during August 2021 was 14.40 MAF against the last year's supply of 11.99 MAF, higher by 2.41 MAF (20.11 percent). During August 2021, as compared to the same time period of last year, the supply in Punjab was 6.86 MAF (higher by 4.99 percent), Sindh was 6.86 MAF (higher by 40.36 percent), Khyber Pakhtunkhwa received 0.18 MAF (without any change) while Balochistan received water supply of 0.40 MAF (higher by 27.87 percent).

Month	Year	Punjab			Sindh	Khyber Pakhtunkhwa	Balochistan	Total
		Jhelum-Chenab	Indus	Total				
		Million Acre Feet						
April	2021	1.81	0.85	2.66	1.82	0.13	0.02	4.64
	2020	1.62	1.13	2.75	2.41	0.05	0.01	5.21
	Change	0.19	-0.27	-0.09	-0.59	0.09	0.01	-0.57
	% change	11.64	-24.25	-3.10	-24.46	195.65	140.0	-10.96
May	2021	2.53	2.56	5.10	2.44	0.18	0.12	7.84
	2020	2.49	3.12	5.61	3.83	0.14	0.20	9.78
	Change	0.04	-0.56	-0.52	-1.39	0.04	-0.08	-1.94
	% change	1.58	-17.83	-9.20	-36.22	28.27	-40.12	-19.88
Jun	2021	2.86	3.00	5.85	5.05	0.20	0.39	11.49
	2020	2.91	3.44	6.34	6.46	0.18	0.48	13.46
	Change	-0.05	-0.44	-0.49	-1.41	0.02	-0.09	-1.98
	% change	-1.71	-12.87	-7.75	-21.84	9.68	-19.09	-14.67
Jul	2021	3.06	3.31	6.37	6.99	0.20	0.49	14.04
	2020	3.16	3.60	6.76	7.64	0.20	0.56	15.17
	Change	-0.10	-0.29	-0.39	-0.66	-0.01	-0.08	-1.13
	% change	-3.14	-8.15	-5.81	-8.61	-3.23	-13.48	-7.47
Aug	2021	3.34	3.52	6.86	6.86	0.18	0.51	14.40
	2020	3.02	3.51	6.53	4.88	0.18	0.40	11.99
	Change	0.32	0.01	0.33	1.97	0.00	0.11	2.41
	% change	10.47	0.27	4.99	40.36	-0.32	27.87	20.11

Source: Indus River System Authority (IRSA)



Source: Indus River System Authority (IRSA)

# Fertilizer Offtake

As per report of NFDC, the month of July 2021 started with opening inventory of 413 thousand tons of Urea. During July 2021, domestic Urea production was 512 thousand tons with total availability of 943 thousand tons. Urea offtake during July remained 622 thousand tons leaving behind closing balance of 321 thousand tons.

The opening inventory of DAP for July 2021 was 353 thousand tons. During July 2021 domestic production of DAP was 74 thousand tons. The total availability of DAP was 594 thousand tons which also includes 167 thousand tons of imported supplies. DAP offtake during July 2021 was 193 thousand tons leaving behind closing balance of 401 thousand tons.

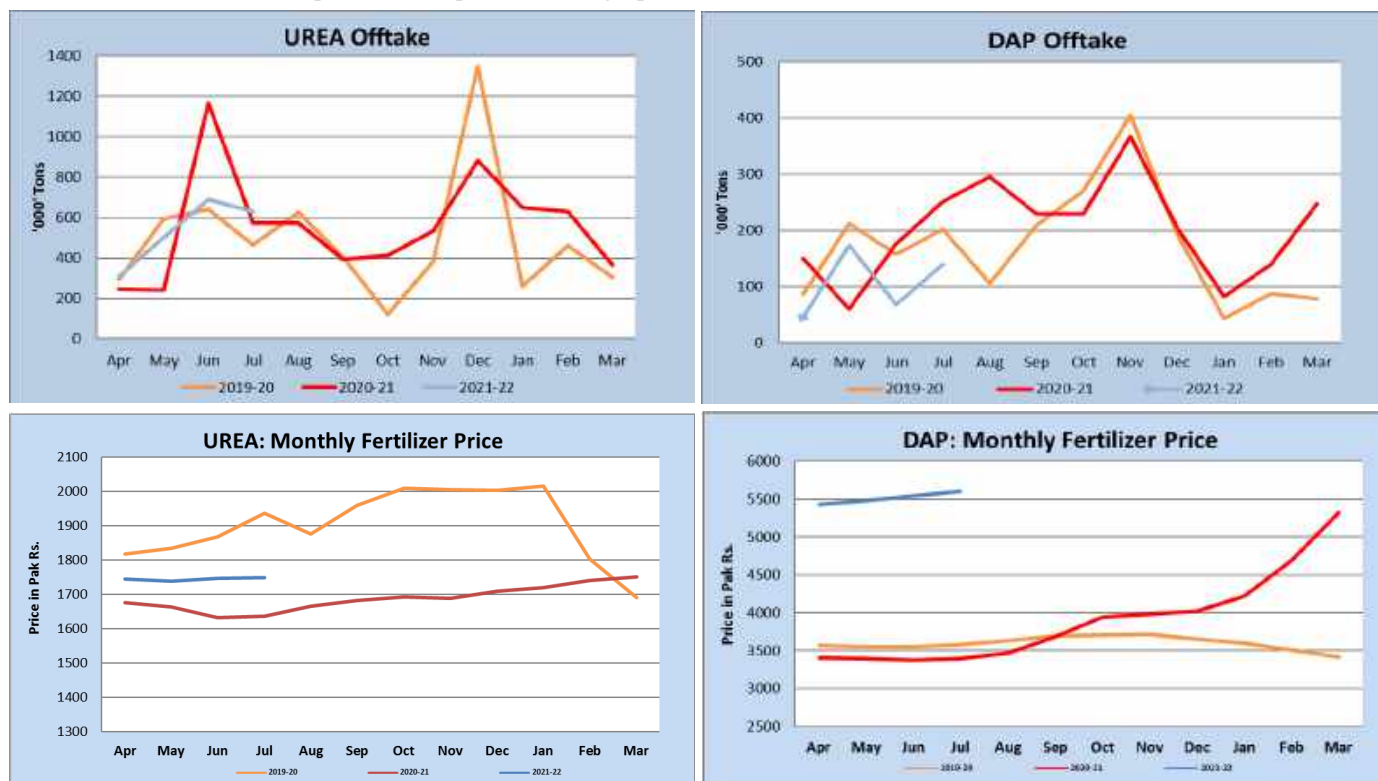
During July 2021, offtake of Nitrogen, Phosphate and Potash decreased by 3.1, 43.0 and 18.4, respectively.

Product	Opening Inventory	Domestic Production	Imports	Total Availability	Offtake	Write On/Off	Closing Balance
	000 Tons						
Urea	413	512	0	943	622	0	321
DAP	353	74	167	594	193	0	401

Month	Fertilizer Offtake Kharif 2021-22				Fertilizer Offtake Kharif 2020-21				% Change			
	Nitrogen	Phosphate	Potash	Total	Nitrogen	Phosphate	Potash	Total	Nitrogen	Phosphate	Potash	Total
	(000 Tons)											
Apr	192.5	41.9	4.8	239.3	174.2	89.2	3.5	266.8	10.5	-53.0	37.1	-10.3
May	293.0	90.1	3.4	386.4	134.4	36.0	2.7	173.0	118.1	150.4	26.5	123.4
Jun	365.0	42.2	4.2	411.4	601.3	96.0	4.7	702.0	-39.3	-56.0	-11.0	-41.4
July	344.2	80.1	3.8	428.0	355.2	140.4	4.6	500.3	-3.1	-43.0	-18.4	-14.4
Total	1194.7	254.3	16.1	1465.2	1265.0	361.6	15.5	1642.1	-5.6	-29.7	4.1	-10.8

Source: MRR.08/2021 NFDC

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



Source: MRR.07/2021 NFDC



## زرعی سفارشات

### ستمبر

#### کپاس:-

- 1- نائٹروجن کی کمی کی صورت میں 2 کلو گرام پوریائی ایکڑ 100 لیٹر پانی میں ملا کر سپرے کریں۔ پھل گرنے کی صورت میں زنک اور بوران کی بھی مناسب مقدار ملا کر سپرے کریں۔
- 2- ستمبر میں کیڑوں کا حملہ زیادہ شدید ہو جاتا ہے۔ اس لیے ہفتے میں دو بار پیسٹ سکاؤٹنگ ضرور کی جائے اور معاشی حد عبور ہونے پر محکمہ زراعت کے مشورے سے مناسب زہروں کا سپرے کریں۔
- 3- سپرے صبح یا شام کے وقت کرنا بہتر ہے کیونکہ دوپہر میں سپرے کرنے سے پتے جھلنے کا اندیشہ ہوتا ہے اور زہر کی افادیت کم ہونے سے مؤثر کنٹرول نہیں ملتا۔
- 4- وائرس کے حملے ہونے پر آغاز ہی سے کھاد اور پانی کے مناسب استعمال پر توجہ دینا ضروری ہے۔ تاکہ تیزی سے بڑھوتری ہو اور وائرس کے نقصانات کم ہوں۔
- 5- اگر فصل بڑھوتری زیادہ کر رہی ہو اور پھل کی مقدار کم ہو تو ایسی صورت میں 100 ملی لیٹر پی کواٹ کلورائیڈ کا سپرے کریں۔
- 6- چنائی کا مناسب ترین دورانیہ صبح 9 بجے سے لیکر شام 4 بجے تک ہے۔ اس لیے کوشش کی جائے کہ صرف اس دوران ہی چنائی کی جائے تاکہ نمی کی وجہ سے کپاس بدرنگ اور خراب نہ ہو۔
- 7- چنائی کے لیے سوئی کپڑا استعمال کریں اور پھٹی کو آلائشوں مثلاً نمی، سرکے بال، رسیاں، خشک پتوں وغیرہ سے صاف رکھنے کے لیے مناسب اقدامات کے جائیں۔
- 8- چنائی کے بعد پھٹی کو ایک بار دھوپ ضرور لگوائیں تاکہ نمی کو مناسب سطح پر لایا جاسکے اور بارش کی صورت میں چنائی روک دیں۔

#### دھان:-

- 1- اگر دھان کے پتے زنگ آلودہ دکھائی دیں تو زنک کی کمی کی علامت ہو سکتی ہے۔ ایسی صورت میں منتقلی کے بعد سوکادیں اور زیادہ کمی کی صورت میں 10 کلو گرام زنک سلفیٹ (21%) کا چھٹہ کھڑے پانی میں دیں۔
- 2- کھیت میں تنے کی سٹڈی یا پتہ لپیٹ سٹڈی کا حملہ نظر آنے کی صورت میں پیسٹ سکاؤٹنگ کے بعد معاشی نقصان کی حد کو مد نظر رکھتے ہوئے زہروں کا استعمال کریں۔
- 3- دھان کی مختلف بیماریوں کے لیے مندرجہ ذیل تدابیر پر عمل پیرا ہوں۔

تدابیر	بیماری
1- بیج کو پھپھوندی کش زہر لگا کر استعمال کریں۔ 2- متاثرہ پودوں کو فوراً نکال دیں۔	بکائی
1- دھان کے کھیتوں میں پانی کی سطح 3 سے 5 سینٹی میٹر تک ہو۔ اس سے زائد پانی نقصان دہ ہے۔ 2- متاثرہ کھیت سے دوسرے کھیت میں پانی نہ جانے دیں۔ 3- بیمار پودوں کو تلف کر دیں۔ 4- شدید حملے کی صورت میں کاپر آکسی کلورائیڈ بحساب 3 گرام فی لیٹر پانی یا پورڈ کمپجر 1:1:120 کے تناسب سے سپرے کریں۔ یعنی ایک کلو گرام نیلا تھو تھا، ایک کلو گرام ان، بچھا چونا اور 120 لیٹر پانی میں ملا کر استعمال کریں۔ اور مزید رہنمائی کے مقامی محکمہ زراعت کے عملے سے مشورہ کریں۔	جراثیمی جھلساؤ
گوبھ سے لیکر دانہ بننے تک کھیت میں پانی کھڑا رکھیں۔	دھان کا بھبکا
بیماری سے پاک بیج استعمال کریں اور حملے کی صورت میں محکمہ زراعت کے مشورے سے پھپھوندی کش زہروں کا سپرے کریں۔	پتوں پر بھورے دھبے

### کماد:-

- 1- ستمبر کاشت کے لیے زمین کی تیاری اور محکمہ زراعت کی منظور کردہ اور مقامی طور پر سفارش کردہ اقسام کا انتخاب کریں۔
- 2- بروقت کاشت ہی اچھی پیداوار کی ضامن ہے۔ اس لیے ماہ ستمبر میں کماد کی کاشت مکمل کر لیں۔
- 3- فروری کاشت فصل یا مونڈھی پر گڑوؤں کا حملہ ہو سکتا ہے۔ اس لیے فصل کے معائنہ کے بعد معاشی نقصان کی حد کو مد نظر رکھتے ہوئے مناسب زہروں کا استعمال کریں۔
- 4- بیماریوں سے متاثرہ پودوں کو نکال دیں اور نہ ہی آئندہ فصل کا بیج اس کھیت سے حاصل کریں اور نہ ہی اس زمین پر آئندہ سال کماد کی فصل کاشت کریں۔

### ملکی:-

- 1- پودوں کو گرنے سے محفوظ کرنے کے لیے پودوں کے ساتھ مٹی چڑھا دیں۔
- 2- موسمی حالات کو مد نظر رکھتے ہوئے مناسب وقفہ سے آبپاشی کریں۔ زائد پانی کی صورت میں نکاس کا بندوبست بھی کریں۔
- 3- جڑی بوٹیاں خوراک، ہوا، پانی میں حصہ دار بن کر پودوں کو کمزور کرتی ہیں۔ نیز یہ جڑی بوٹیاں بیماریوں اور کیڑوں کے پھیلاؤ میں مددگار ہوتی ہیں۔ اس لیے ان پر خصوصی توجہ دیں۔
- 4- تنے کی سنڈی کے حملے کی صورت میں دانے دار زہروں کا استعمال کریں اور اس کے بعد کھیت کو پانی لگادیں۔



Pakistan Space & Upper Atmosphere Research Commission  
SPARC, Main Islamabad Highway, 44000, Islamabad, Pakistan  
Tel: (+92) 51-4611792 Fax: (+92) 51-4611796  
E-mail: [sgs@suparco.net.pk](mailto:sgs@suparco.net.pk)  
<http://www.suparco.gov.pk>