

# PAK-SCMS

## BULLETIN

PAKISTAN: SATELLITE BASED CROP MONITORING SYSTEM

Volume XII, Issue 07, Serial No. 139

1-July 2022

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: JUNE 2022

#### Summary

By the end of June 2022, increasing values of satellite based Normalized Difference Vegetation Index (NDVI) show start of Kharif season. Generally, above normal temperatures were observed in most parts of the country. Normal to above normal rains in most parts of agricultural plains were observed.

Federal Committee on Agriculture in its meeting held on 31<sup>st</sup> March, 2022 fixed Kharif crops targets. Cotton crop production target of 11.034 million bales was fixed from an area of 2,533.3 thousand hectares with an average yield of 740.4 kg per ha. Similarly rice crop production target of 8.611 million tons was fixed from an area of 3,069.9 thousand hectares with an average yield of 2,804.9 kg per ha. Sugarcane production target of 78.588 million tons was fixed from an area of 1,181.9 thousand hectares with an average yield of 66.492 tons per hectare.

Cotton crop sowing has been completed during the month in Punjab and Sindh and is at varying growth stages from germination to boll formation depending

on sowing time. As per reports of Pakistan Central Cotton Committee (PCCC), upto 30<sup>th</sup> June, 2022, the total area sown at National level is 2.000 million hectares, approximately 6.9 percent more than the same period of last year. Punjab has achieved 81.5 percent of its targets with sowing of 1.485 million hectares of cotton. In Sindh, area sown is 0.592 million hectares resulting in achievement of 80.5 percent of the target. Due to prevailing weather conditions increased pest/disease infestation has been observed during June 2022, especially white fly, jassid and CLCV.

In local market, average ex-gin cotton price during June 2022 was higher by about 40.15 percent compared to June 2021. Approximate average ex-gin price during June 2022 was Rs. 22195.5 per 40 kg against Rs. 13283.4 during June 2021 showing an increase of Rs. 8912.2 per 40 kg.

Sugarcane crop growth was generally satisfactory and insect pest situation was also under control by end of month.



## CROPS SITUATION

Early transplanted coarse rice was at vegetative stage. Further, nursery sowing operations and transplantation were in progress.

As per report of Indus River System Authority (IRSA) for June 2022, the irrigation water supply was 7.22 MAF against the last year's supply of 11.49 MAF, decreased by 37.14 percent. As compared to the same period of last year, the irrigation water supplies were short in Punjab, Sindh, Khyber Pakhtunkhwa and Balochistan.

As per report of National Fertilizer Development Centre (NFDC), total availability of Urea in May 2022 was 881 thousand tons whereas total availability of DAP was 459 thousand tons. During May 2022, off take of Nitrogen, Phosphate and Potash decreased by 18.5, 32.9 and 19.1 percent respectively, as compared to the same period of last year.



Normalized Difference Vegetation Index (NDVI) 30<sup>th</sup> June 2022

# Kharif Crops

## Cotton Crop 2022-23

Cotton crop sowing has almost been completed during the month in Punjab and Sindh and is at varying growth stages from germination to boll formation depending on sowing time.

### Targets and Sowing of Cotton Crop during 2022-23

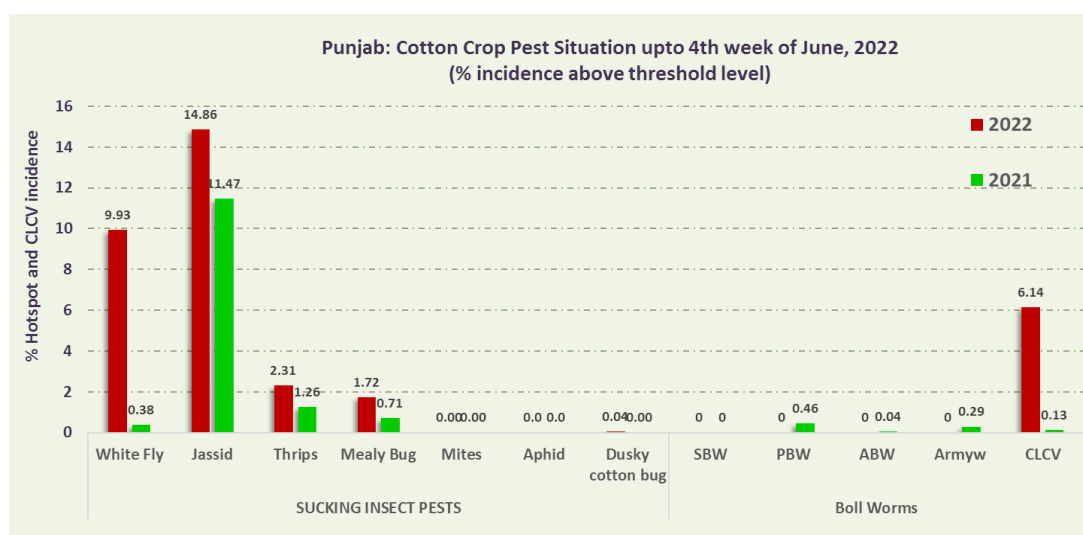
Federal Committee on Agriculture (FCA) in its meeting held on 31<sup>st</sup> March, 2022 fixed target of cotton crop production at 11.034 million bales from an area of 2,533.3 thousand hectares. Province wise targets are as under;

Proposed Target of Cotton Crop During 2022-23			
Province	Area (000 ha)	Production (000 Bales)	Yield (kg/ha)
Punjab	1,821.0	6,600.0	616.0
Sindh	640.0	4,000.0	1,062.5
Khyber Pakhtunkhwa	2.2	4.0	309.1
Balochistan	70.0	430.0	1,044.0
<b>Pakistan</b>	<b>2,533.3</b>	<b>11,034.0</b>	<b>740.4</b>

Source: FCA

As per reports of Pakistan Central Cotton Committee (PCCC), upto 30<sup>th</sup> June, 2022, the total area sown at National level is 2.000 million hectares, approximately 6.9 percent more than the same period of last year. Punjab has achieved 81.5 percent of its targets with sowing of 1.485 million hectares of cotton. In Sindh, area sown is 0.592 million hectares resulting in achievement of 80.5 percent of the target.

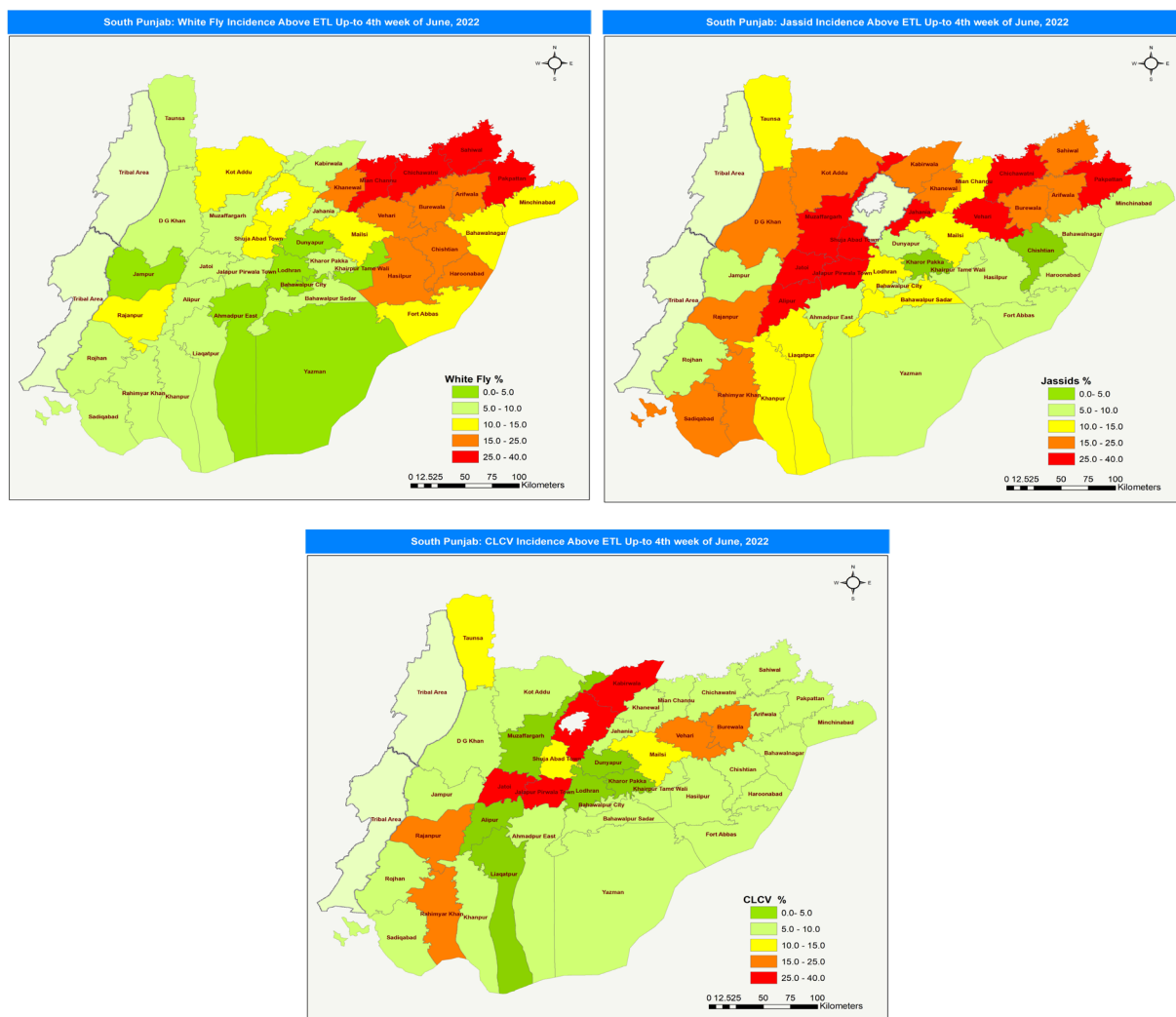
Cotton crop condition was generally satisfactory during the month. Sporadic attack of insect pests particularly jassid, white fly and CLCV were reported in some areas of the Punjab. Due to prevailing weather conditions increased pest/disease infestation has been observed during June 2022. Insect pest situation of Punjab province in comparison to last year is given below;



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

Keeping in view the increasing trend at early stage of cotton crop, farmers and concerned departments need to remain vigilant for spread and control of cotton pests.

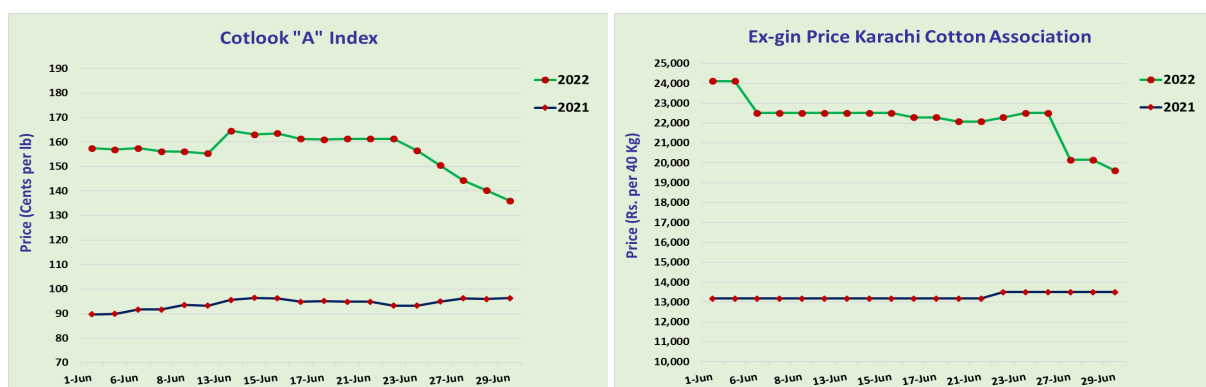
## CROPS SITUATION



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

## Market Prices of Cotton Crop

In the international market, average cotton price during June 2022 was 156.02 cents per lb as compared to average price of 94.07 cents per lb during June 2021, showing an increase of 61.95 cents per lb (up by 39.07 percent). In local market, average ex-gin cotton price during June 2022 was higher by about 40.15 percent compared to June 2021. Approximate average ex-gin price during June 2022 was Rs. 22195.5 per 40 kg against Rs. 13283.4 during June 2021 showing an increase of Rs. 8912.2 per 40 kg.



Source: PCCC



## Sugarcane Crop 2021-22

Sugarcane crop growth was generally satisfactory and insect pest situation was also under control.

Federal Committee on Agriculture (FCA) in its meeting held on 31<sup>st</sup> March, 2022 fixed target of sugarcane crop production at 78.588 million tons from an area of 1,181 thousand hectares for Kharif 2022-23. Province wise targets are as under;

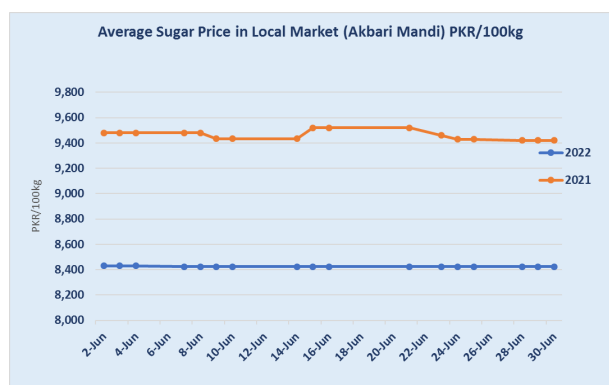
Proposed Target of Sugarcane Crop During 2022-23			
Province	Area (000 ha)	Production (Million Tons)	Yield (tons/ha)
Punjab	760.8	52.500	69.006
Sindh	310.0	19.950	64.354
Khyber Pakhtunkhwa	110.1	6.086	55.266
Balochistan	1.0	0.052	52.500
<b>Pakistan</b>	<b>1,181.9</b>	<b>78.588</b>	<b>66.492</b>

Source: FCA

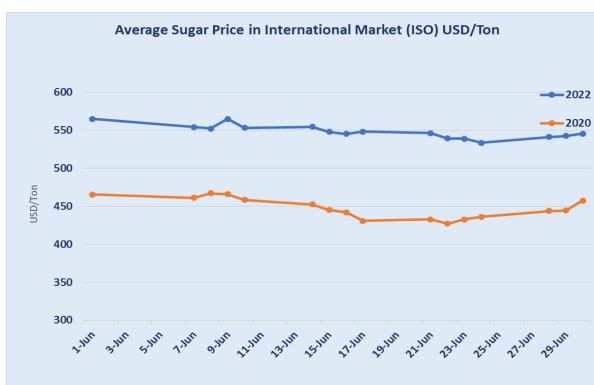
Sugar price in the international market (White Sugar Price Index) during June 2022 was approximately 22.48 percent higher compared to June 2021. Average sugar price during June 2022 was USD 548.4 per ton against the average sugar price of USD 447.7 per ton during June 2021, showing average increase of USD 80.64 per ton.

Sugar prices in the local market (Akbari Mandi) also remained lower during June 2022 as compared to June 2021. Average sugar price during June 2022 was around Rs. 8425.9 per 100 kg against the average sugar price of Rs. 9461.5 per 100 kg during June 2021, showing a decrease of around Rs. 1035.5 per 40 kg.

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

Early transplanted coarse rice was at vegetative stage. Further, nursery sowing operations and transplantation were in progress.

During current Kharif season (April-June), water availability is less than last year. This may increase the use of ground water increasing cost of production to meet crop water requirement.

Federal Committee on Agriculture (FCA) in its meeting held on 31<sup>st</sup> March, 2022 fixed rice crop target at 8.611 million tons from an area of 3,069.9 thousand hectares for the year 2022-23. Detail of province wise rice crop is as under;

Proposed Target of Rice Crop During 2022-23			
Province	Area (000 ha)	Production (Million tons)	Yield (kg/ha)
Punjab	2,023.4	4.704	2,324.8
Sindh	800.0	3.150	3,937.5
Khyber Pakhtunkhwa	66.5	0.169	2,539.2
Balochistan	180.0	0.588	3,266.7
<b>Pakistan</b>	<b>3,069.9</b>	<b>8.611</b>	<b>2,804.9</b>

Source: FCA

## Water Supply Situation for Kharif 2022-23

By 30<sup>th</sup> June 2022, water storage level in Tarbela and Mangla reservoir was at level of 1399.48 and 1098.35 ft. This situation is visually evident from satellite images. The comparative satellite images are given below;

Tarbela Reservoir

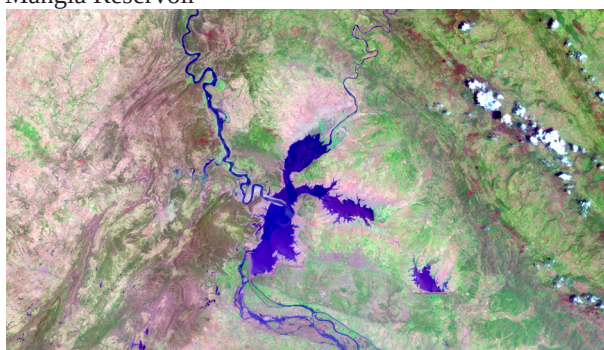


29<sup>th</sup> June 2022

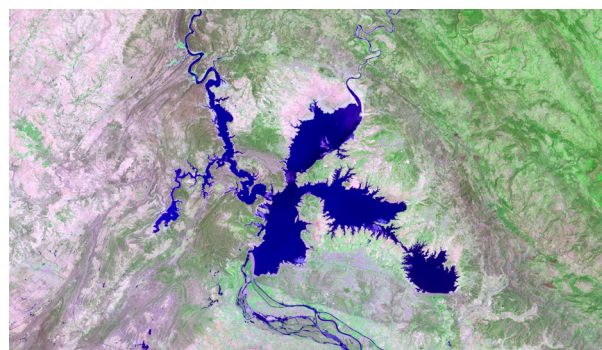


29<sup>th</sup> June 2021

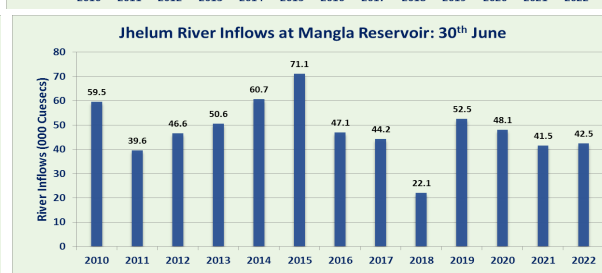
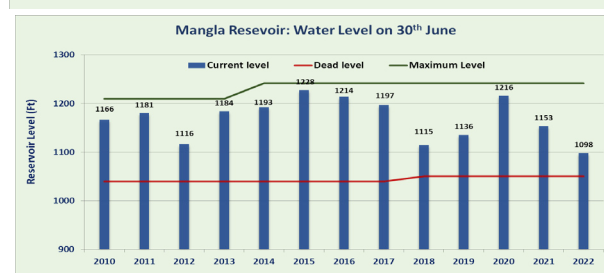
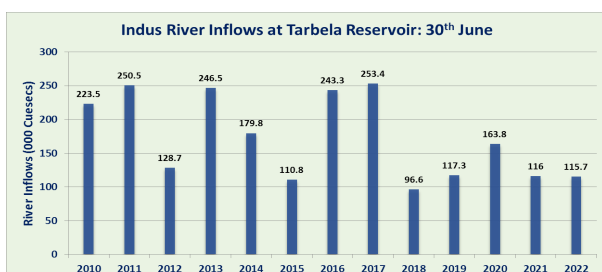
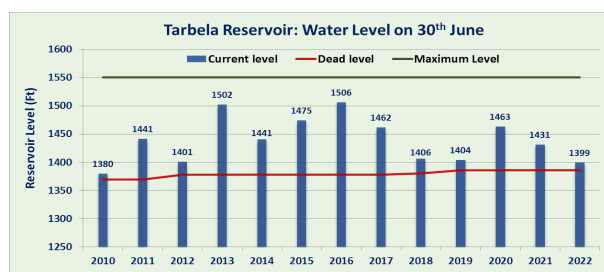
Mangla Reservoir



29<sup>th</sup> June 2022



29<sup>th</sup> June 2021



Source: WAPDA

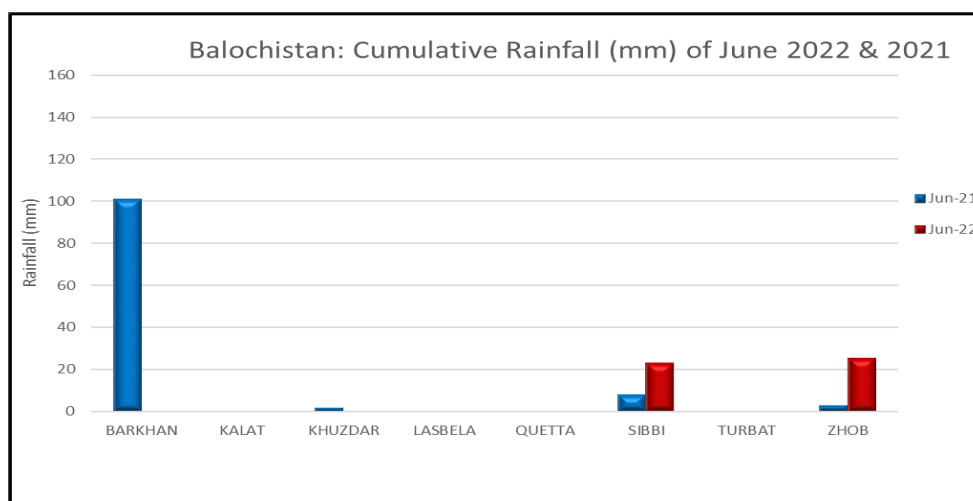
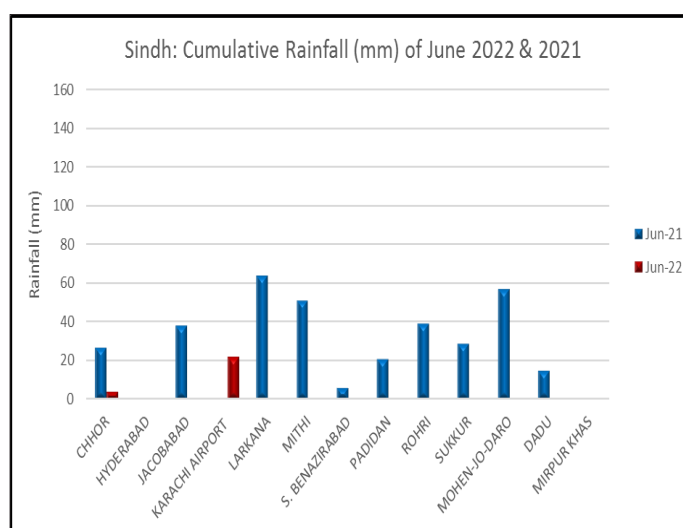
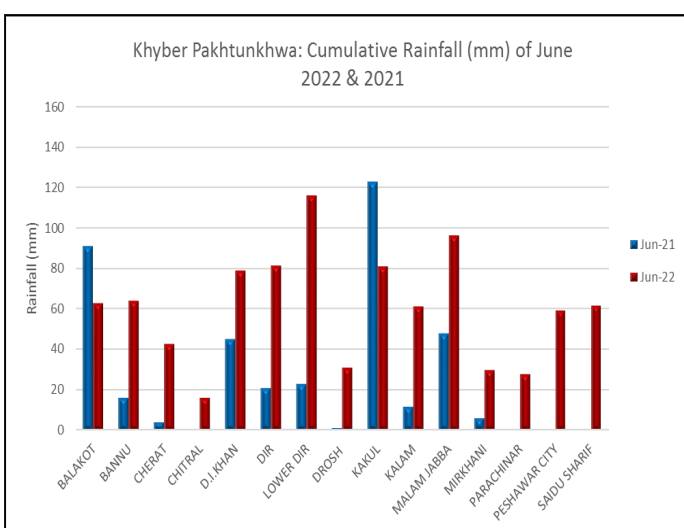
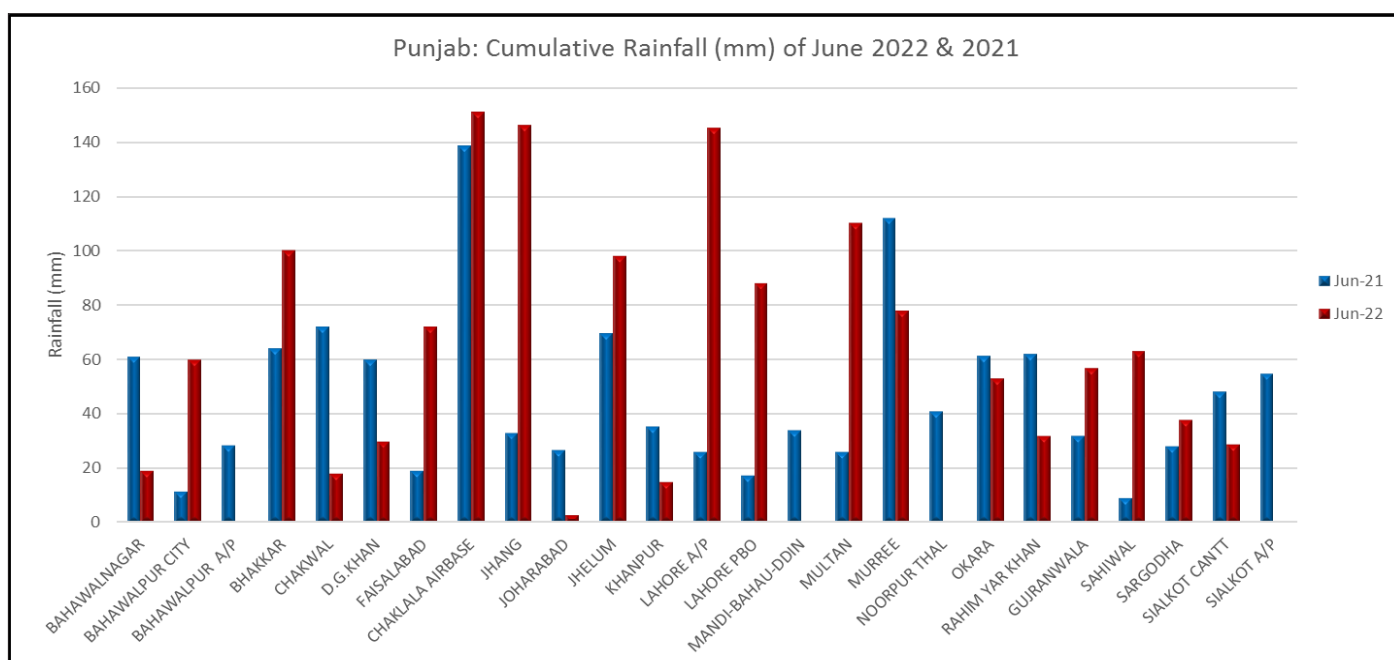
## Actual Irrigation Water Supplies (IRSA) April-June 2022

As per report of IRSA, during Kharif 2021-22 (April-June 2022), total irrigation water supply was 18.13 MAF against the last year's supply of 23.97 MAF down by 5.84 MAF as compared to last year. This indicates a decrease in irrigation water supply of 24.36 percent compared to last year. Three years month wise actual irrigation supply by IRSA is as follow;

Actual Irrigation Releases-IRSA (MAF)				
Year	April	May	June	Total
2022	4.28	6.63	7.22	18.13
2021	4.64	7.84	11.49	23.97
2020	5.21	9.78	13.46	28.45



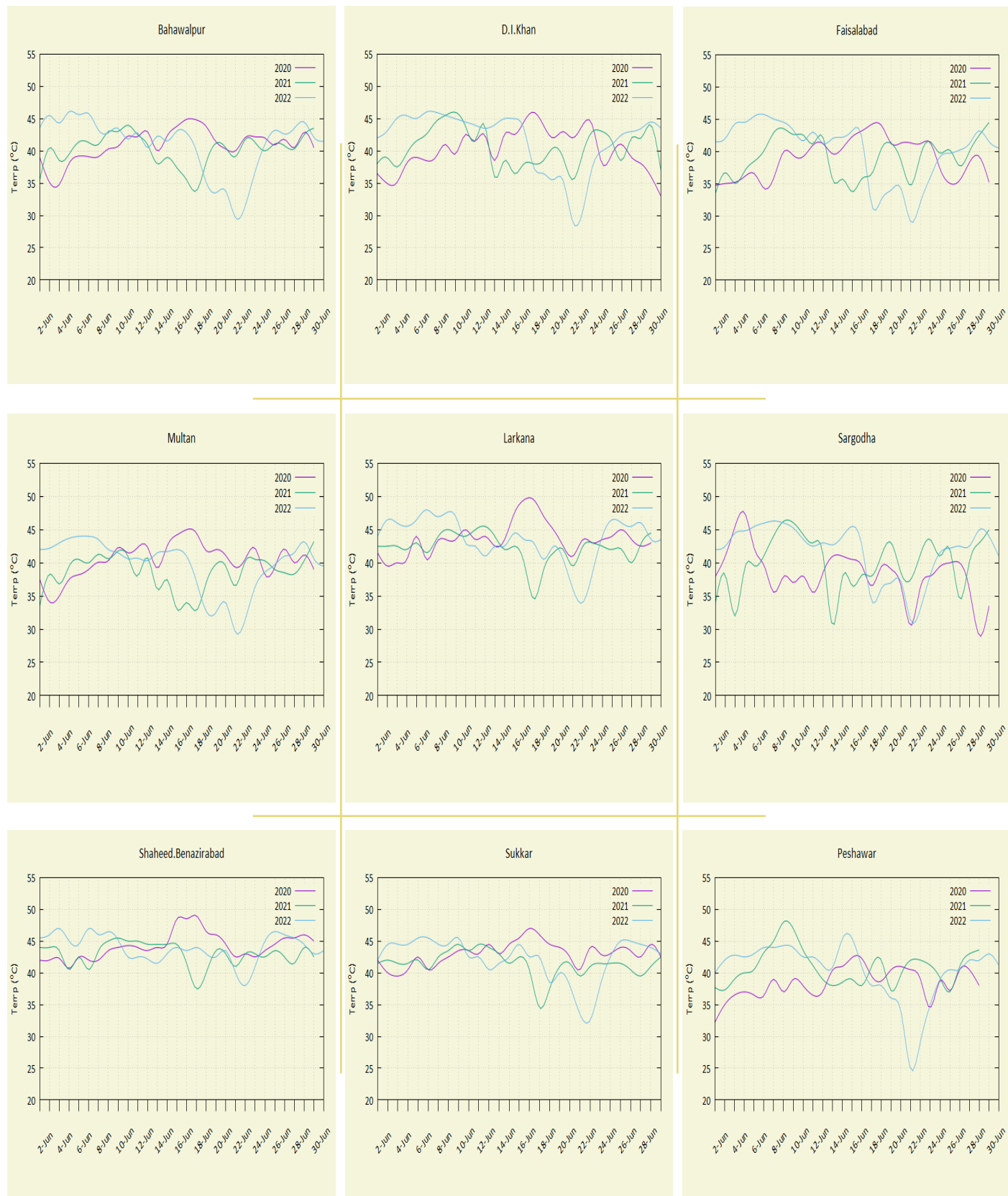
# Monthly Rainfall (mm): June (2021 & 2022)



Source: PMD

# Maximum Temperature: June, 2022

The ranges of maximum temperature ( °C ) during June 2022 were as follows:



Source: PMD



# Minimum Temperature: June, 2022

The ranges of minimum temperature ( °C ) during June 2022 were as follows:



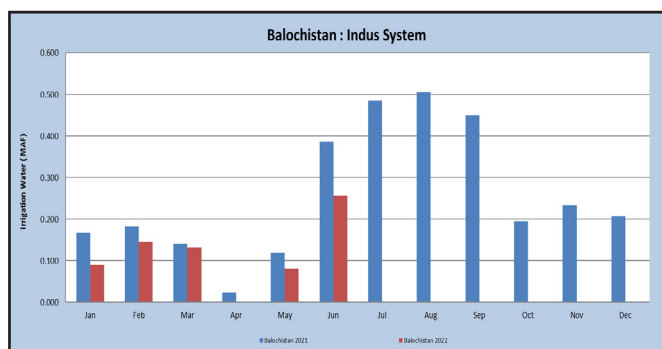
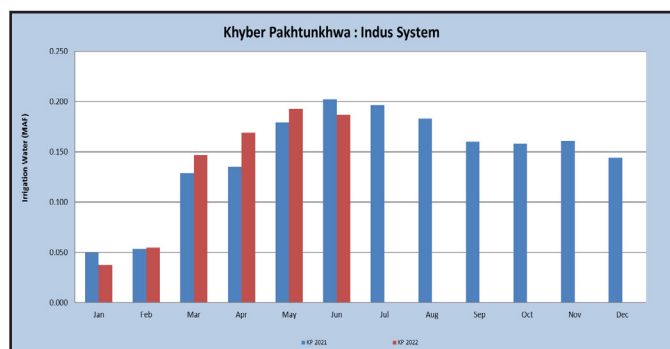
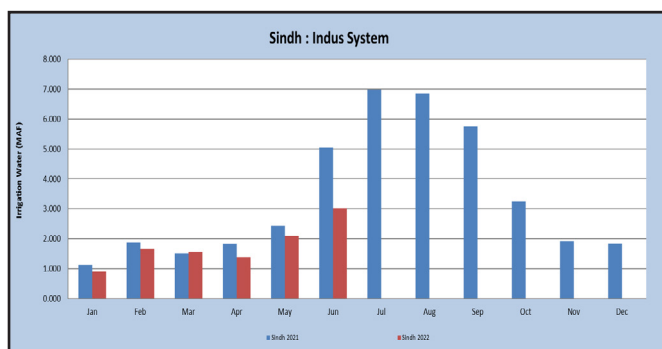
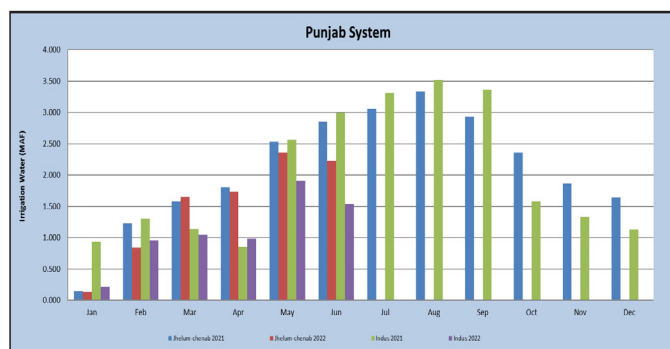
Source: PMD

# Irrigation Water Supply: June, 2022

The irrigation water supply during June 2022 was 7.22 MAF against the last year's supply of 11.49 MAF, lower by 4.27 MAF (37.14 percent). During June 2022, as compared to the same time period of last year, the supply in Punjab was 3.76 MAF (lower by 35.73 percent), Sindh was 3.02 (lower by 40.20 percent), Khyber Pakhtunkhwa was 0.19 MAF (lower by 7.84 percent) while Balochistan received water supply of 0.26 MAF (lower by 33.85 percent).

Kharif 2022-23	Month	Year	Punjab			Sindh	Khyber Pakhtunkhwa	Balochistan	Total
			Jhelum-Chenab	Indus	Total				
			Million Acre Feet						
	Apr	2022	1.73	0.98	2.72	1.39	0.17	0.00	4.28
		2021	1.81	0.85	2.66	1.82	0.13	0.02	4.64
		Change	-0.08	0.13	0.06	-0.43	0.03	-0.02	-0.36
		% change	-4.28	15.08	2.16	-23.66	25.00	-100.00	-7.82
	May	2022	2.36	1.91	4.26	2.10	0.19	0.08	6.63
		2021	2.53	2.56	5.10	2.44	0.18	0.12	7.84
		Change	-0.18	-0.65	-0.83	-0.35	0.01	-0.04	-1.20
		% change	-6.98	-25.53	-16.31	-14.24	7.53	-32.00	-15.36
	Jun	2022	2.23	1.53	3.76	3.02	0.19	0.26	7.22
2021		2.86	3.00	5.85	5.05	0.20	0.39	11.49	
Change		-0.63	-1.46	-2.09	-2.03	-0.02	-0.13	-4.27	
% change		-22.01	-48.81	-35.73	-40.20	-7.84	-33.85	-37.14	

Source: Indus River System Authority (IRSA)



Source: Indus River System Authority (IRSA)



# Fertilizer Offtake

As per report of NFDC, the month of May 2022 started with opening inventory of 318 thousand tons of Urea. During May 2022, domestic Urea production was 563 thousand tons with total availability of 881 thousand tons. Urea offtake during May remained 418 thousand tons leaving behind closing balance of 466 thousand tons.

The opening inventory of DAP for May 2022 was 336 thousand tons. During May 2022 domestic production of DAP was 79 thousand tons. The total availability of DAP was 459 thousand tons. DAP offtake during May 2022 was 94 thousand tons leaving behind closing balance of 370 thousand tons.

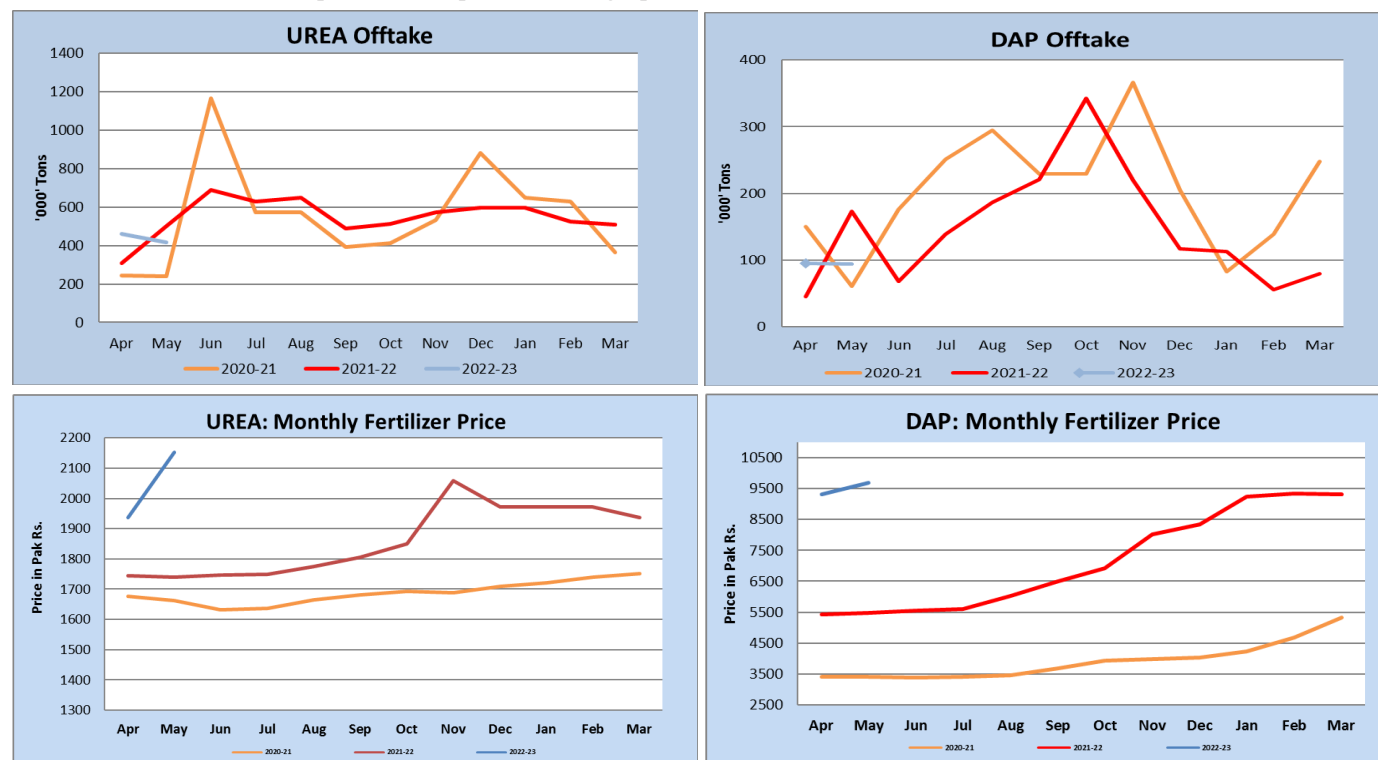
During May 2022, offtake of Nitrogen, Phosphate and Potash decreased by 18.5, 32.9 and 19.1 percent respectively, as compared to same period of last year.

Product	Opening Inventory	Domestic Production	Imports	Total Availability	Offtake	Write On/Off	Closing Balance
000 Tons							
Urea	318	563	0	881	418	3	466
DAP	336	79	44	459	94	5	370

Month	Fertilizer Offtake Rabi 2022-23				Fertilizer Offtake Rabi 2021-22				% 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
Total	398.6	120.4	5.4	524.4	485.5	132.0	8.2	625.7	-17.9	-8.8	-33.7	-16.2

Source: MRR.05/2022 NFDC

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



Source: MRR.05/2022 NFDC

## زرعی سفارشات (جولائی)

### کپاس:-

- 1- زیادہ درجہ حرارت اور غذائی اجزاء کی کمی سے بیٹی اقسام کا پھل گر سکتا ہے۔ اس لیے ٹائمر و جینی کھاد کے استعمال کے ساتھ ساتھ تجزیہ کے بعد بوران اور زنک کی کمی کی صورت میں ان اجزاء کا استعمال بھی بذریعہ سپرے کیا جائے۔
- 2- آبپاشی، زمین کی زرخیزی، طریقہ کاشت، موسمی حالات، کاشتہ قسم اور فصل کی حالت کو مد نظر رکھ کر کرنی چاہیے۔ عام طور پر کھیت کے اونچے حصے پر پانی کی کمی کی علامات پہلے ظاہر ہوتی ہیں۔ جو کہ یہ ہیں۔ (a) پتوں کا نیلگوں ہونا (b) اوپر والی شاخ کی درمیانی لمبائی میں کمی (c) سفید پھول کا چوٹی پر آنا (d) تنے کے اوپر کے حصے کا تیزی سے سرخ ہونا (e) چوٹی کے پتوں کا کھردرا ہونا۔
- 3- پٹریوں پر کاشتہ فصل کو پانی 9 تا 6 دن کے وقفہ سے لگائیں۔ اور آخری پانی 15 اکتوبر تک لگادیں۔ جبکہ لائنوں میں کاشتہ فصل کو پانی کی کمی ظاہر ہونے پر مناسب وقفہ (12 تا 15 دن) پر لگائیں۔ جبکہ آخری پانی 30 ستمبر تک لگادیں۔
- 4- جڑی بوٹیوں کی تلفی پر خصوصی توجہ دیں کیونکہ یہ ہوا، پانی، خوراک اور روشنی میں حصہ دار بن کر پودوں کو کمزور کرتی ہیں۔ اس کے علاوہ جڑی بوٹیاں سفید مکھی، مٹی بگ اور لیف کرل داس کے میزبان پودے کے طور پر ان کے پھیلاؤ میں مددگار ہوتی ہیں۔
- 5- مون سون بارشوں کا پانی کھیت میں کھڑا نہ ہونے دیں اور نکاس کا بروقت انتظام کریں۔ اگر پانی کھیت سے نہ نکالا جاسکتا ہو تو کھیت کے ایک طرف لمبائی کے رخ کھائی کھود کر پانی اس میں جمع کر دیں۔
- 6- کپاس کی فصل اس وقت ہری بھری اور سرسبز ہے۔ اس لیے رس چوسنے والے اور دیگر کیڑوں کے حملے کا اندیشہ ہے۔ ضرورت اس امر کی ہے کہ ہفتے میں دو بار پیسٹ سکاؤٹنگ کی جائے اور کسی بھی کیڑے کے معاشی حد عبور کرنے پر محکمہ زراعت کے عملے کے مشورے کے بعد فوراً سپرے کی جائے۔

کپاس کے نقصان دہ کیڑوں کی معاشی نقصان کی حد مندرجہ ذیل ہے۔

نمبر شمار	رس چوسنے والے کیڑے	معاشی نقصان کی حد	سختیاں	معاشی نقصان کی حد	
				بیٹی اقسام	روایتی اقسام
1	تھرپس	8 تا 10 بالغ یا بچے فی پتا	چکمری سٹڈی	کھیت میں زندہ سٹڈی نظر آنے پر	3 سٹڈیاں فی 25 پودے یا 10 ڈوڈیوں، پھولوں اور ٹیٹوں کا نقصان
2	سبز تیلہ	ایک بالغ یا بچہ فی پتا	گلابی سٹڈی	کھیت میں زندہ سٹڈی نظر آنے پر	5 سٹڈیاں فی 100 نرم ٹیٹے یا آگست میں 10% اور ستمبر میں 5% نقصان
3	سفید مکھی	5 بالغ یا بچے یا دو لون ملا کر فی پتا	امریکن سٹڈی	کھیت میں زندہ سٹڈی نظر آنے پر	5 بجورے انڈے یا 3 چھوٹی سٹڈیاں فی 25 پودے یا دو لون ملا کر 5 فی 25 پودے
4	جوئیں	نقصان کی علامات ظاہر ہونے پر	لکڑی سٹڈی	کھیت میں حملہ نظر آنے پر	کھیت میں حملہ نظر آنے پر



## کھاد:-

- 1- موسمی حالات کو مد نظر رکھتے ہوئے مناسب وقفہ (تقریباً 10 سے 12 دن) سے آبپاشی کا عمل جاری رکھیں۔ تاکہ پانی کی کمی سے پیداوار متاثر نہ ہو۔
- 2- پانی کی کمی کی صورت میں ایک قطار چھوڑ کر آبپاشی کریں۔ اور اگلے پانی پر چھوڑی ہوئی قطار میں پانی لگائیں۔
- 3- مقامی محکمہ زراعت کے عملہ کی مدد سے جڑ اور تنے کی گڑوؤں کی تلفی کے لیے مناسب دانہ دار زہروں کا انتخاب کریں۔
- 4- گھوٹا مکھی کے تدارک کے لیے دشمن طفیلی کیڑوں کی پرورش کو فروغ دیں۔ اس کے لیے شوگر ملوں یا محکمہ زراعت سے طفیلی کیڑوں کے کارڈ لیکر کھیت میں پودوں کے ساتھ لٹکادیں۔ شدید حملہ اور طفیلی کیڑوں کی کمی کی صورت میں دانہ دار زہروں کا استعمال کریں اور دانہ دار زہر ڈالنے کے بعد کھیت کو لازمی پانی دیں۔

## دھان:-

- 1- منتقلی کے وقت پنیری کی عمر 25 سے 35 ہونی چاہیے۔ البتہ سیم زدہ زمین پر منتقلی کی صورت میں پنیری کی عمر 35 سے 45 دن ہونی چاہیے تاکہ پودوں کا مرجھاؤ کم ہو۔
- 2- کھر کے خلاف قوت مدافعت رکھنے والی اقسام کے ایس 282، باسستی 385 اور شاہین باسستی استعمال کریں۔
- 3- پنیری اٹھاڑنے سے ایک یا دو دن پہلے پانی لگائیں تاکہ منتقلی کے دوران پودے کی جڑوں کو نقصان نہ ہو۔ منتقلی کے دوران سنڈی سے متاثرہ اور جھلے ہوئے پودوں کو تلف کر دیں۔
- 4- پودوں اور قطاروں کے درمیان 9 انچ کا فاصلہ رکھتے ہوئے سوراخوں کی تعداد 80 ہزار جبکہ پودوں کی تعداد 1 لاکھ 60 ہزار ہونی چاہیے۔ پودوں کی تعداد میں کمی پیداوار کو متاثر کرتی ہے۔
- 5- جڑی بوٹیوں کی بذریعہ زہر تلفی کے لیے سفارش کردہ جڑی بوٹی مار زہر لاپ کی منتقلی کے 3 تا 5 دن کے اندر اندر چھڑکا دیں۔
- 6- کھادوں کا استعمال کاشتہ قسم کو مد نظر رکھتے ہوئے متوازن اور مناسب ہونا چاہیے۔

نمبر شمار	نام قسم	اوسط کھاد کی مقدار فی ایکڑ
1	موٹی اقسام	پونے دو بوری ڈی اے پی + سوا بوری یوریا + سوا بوری پوٹاشیم سلفیٹ
2	باسستی اقسام	ڈیڑھ بوری ڈی اے پی + پونی بوری یوریا + ایک بوری پوٹاشیم سلفیٹ

- تمام فاسفورس، پوٹاش اور آدھی نائٹروجن کھاد آخری سہاگہ دینے سے پہلے جبکہ بقیہ نائٹروجن لاپ منتقلی کے 35 دن بعد ڈالیں۔
- 7- لاپ منتقلی کے 10 تا 12 دن بعد 35% والا زنگ سلفیٹ 5 کلو گرام یا 20% والا زنگ سلفیٹ 10 کلو گرام فی ایکڑ استعمال کریں
- 8- ٹیوب ویل سے سیراب ہونے والی زمین یا جزدی بازہ زمین میں کھادوں کے ساتھ 10 بوری جیسم فی ایکڑ ڈالنے سے پیداوار میں خاطر خواہ اضافہ ہوتا ہے۔



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