

# PAK-SCMS

## BULLETIN

PAKISTAN: SATELLITE BASED CROP MONITORING SYSTEM

Volume XI, Issue 05, Serial No. 125 1-May 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: APRIL 2021

#### Summary

By the end of April 2021, decreasing values of satellite based Normalized Difference vegetation Index (NDVI) manifested the termination of Rabi season. Generally, normal temperatures were observed in most parts of the country. 3-4 rain spells with below normal to normal precipitation received in parts of Punjab, Khyber Pakhtunkhwa, Gilgit- Baltistan and Azad Jammu & Kashmir. 1-2 rain spells with light to moderate rainfall were observed in Sindh and Balochistan.

Wheat crop condition was satisfactory in irrigated areas. However, in rainfed areas less rains during early season of crop growth caused stress to wheat crop. Wheat harvesting operations were started in most parts of Punjab and Sindh.

Using Satellite based Crop Monitoring System, SUPARCO estimated wheat production of 27.016 million tons from an area of 9.593 million hectares for Rabi season 2020-21. Salient features of wheat crop 2020-21 were: a) Increase in area sown under wheat crop b) Significant increase in Minimum Support Price of

Wheat c) timely sowing of wheat crop due to early termination of Kharif crops particularly cotton d) Better irrigation water supply in areas of Indus Command, Khyber Pakhtunkhwa and Balochistan e) Shortage of irrigation water supply in some areas of Chenab – Mangla Command and Sindh during November to January f) Higher prices of DAP than last year g) Hailstorm / rains in Multan division during third week of March causing damage to wheat production on limited scale.

As per report of Pakistan Cotton Ginning Association (PCGA) on 3rd May 2021, cotton arrivals in ginning factories of Pakistan were 5645.967 thousand bales. During end of April 2020 data was not collected due to COVID-19 pandemic. Comparative statistics were available up to 18th March 2020. By the 18th March 2021, Punjab and Sindh had observed a decreased arrival of 31.19 and 38.51 percent, respectively, as compared to last year. In local market, average ex-gin cotton price during April 2021 was higher by about 20.65 percent compared to April 2020. Approximate average ex-gin price

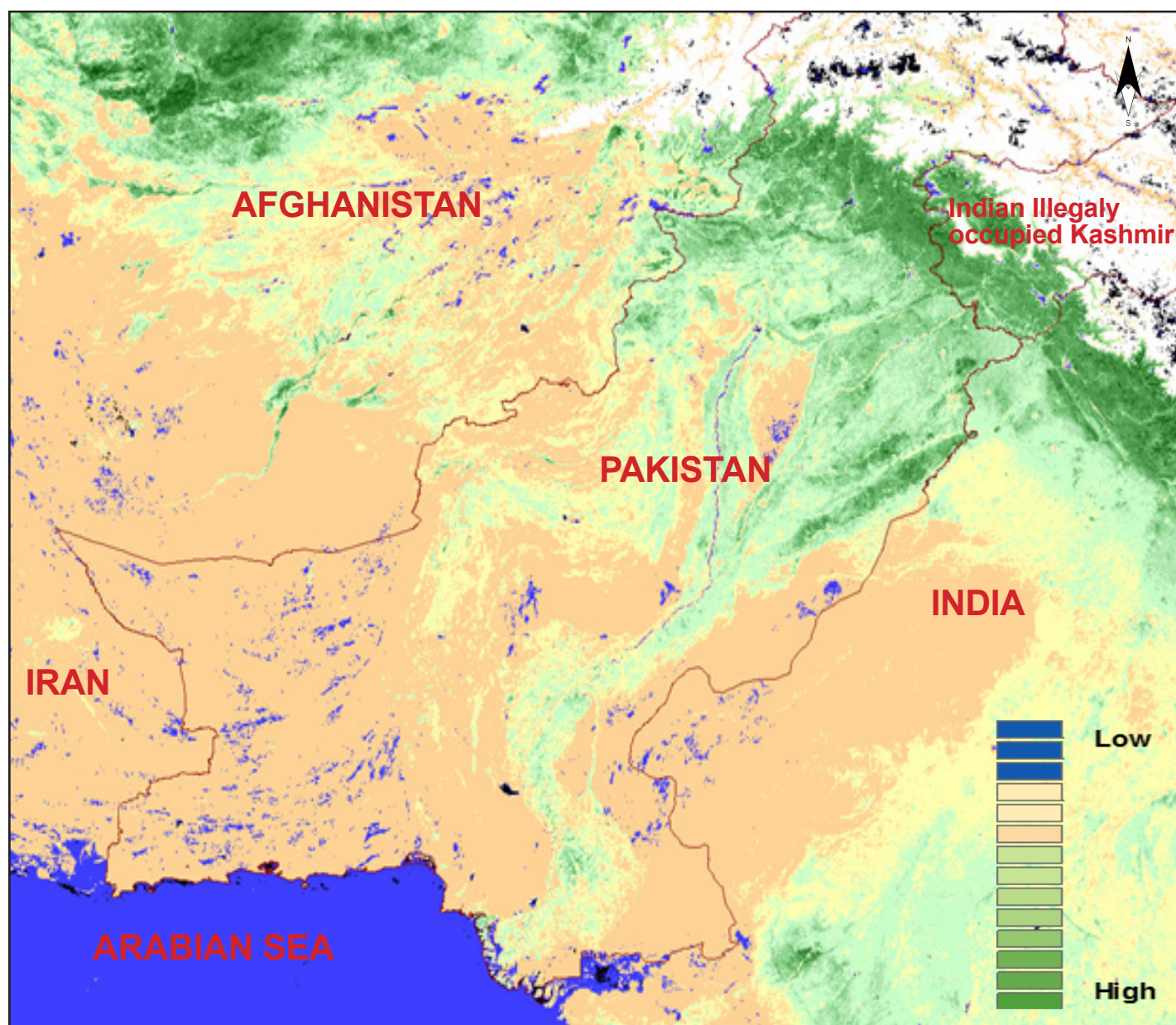


## CROPS SITUATION

during April 2021 was Rs. 11885.6 per 40 kg against Rs. 9431.0 during April 2020 showing an increase of Rs. 2454.6 per 40 kg.

As per report of Indus River System Authority (IRSA) for April 2021, the irrigation water supply was 4.64 MAF against the last year's supply of 5.21 MAF, short by 10.96 percent. As compared to the same period of last year, the irrigation water supplies were better in Khyber Pakhtunkhwa and Balochistan whereas Punjab and Sindh observed short irrigation supplies.

As per report of National Fertilizer Development Centre (NFDC), total availability of Urea in March 2021 was 642 thousand tons whereas total availability of DAP was 201 thousand tons. During March 2021, off take of Nitrogen, Phosphate and Potash increased by 18.7, 62.2 and 87.0 percent, respectively, as compared to the same period of last year.



Normalized Difference Vegetation Index (NDVI) 30<sup>th</sup> April, 2021

# Rabi 2020-21

## Wheat

Wheat crop condition was satisfactory in irrigated areas. However, in rainfed areas less rains during early season of crop growth caused stress to wheat crop. Wheat harvesting operations were started in most parts of Punjab and Sindh. In Khyber Pakhtunkhwa, the harvesting starts by start of May in southern parts and continues up to June in the northern parts.

This year wheat area and production targets have been increased to meet country's food requirement during the year 2020-21. Federal Committee on Agriculture (FCA) in its meeting held on 22nd October, 2020 fixed wheat crop targets for 2020-21 with consensus of the provinces. Province wise wheat crop 2020-21 targets are as follows:

Wheat Targets 2020-21 fixed by FCA			
Province	Area (000 Ha)	Production (000 Tons)	Yield (kg/ha)
Punjab	6,560.0	20,000.0	3,049.0
Sindh	1,200	4,000.0	3,333.0
Khyber Pakhtunkhwa	900.0	1,700.0	1,889.0
Balochistan	550.0	1,300.0	2,360.0
<b>Pakistan</b>	<b>9,160.0</b>	<b>27,000.0</b>	<b>10,631.0</b>

Using Satellite based Crop Monitoring System, SUPARCO estimated wheat production of 27.016 million tons from an area of 9.593 million hectares for Rabi season 2020-21.

Satellite based Wheat Crop Estimates (2020-21)			
Province	Area (000 Ha)	Production (000 Tons)	Yield (kg/ha)
Punjab	6,684.6	19,973.7	2,988.0
Sindh	1,748.7	4,853.1	2,775.0
Khyber Pakhtunkhwa	731.4	1,247.7	1,706
Balochistan	428.9	942.3	2,197.0
<b>Pakistan</b>	<b>9,593.6</b>	<b>27,016.8</b>	<b>2,816.0</b>

## Key Factors for Wheat 2020-21

### Positive Factors:

- Timely sowing of wheat crop due to early termination of Kharif crops particularly cotton.
- Better irrigation water supply in areas of Indus Command, Khyber Pakhtunkhwa and Balochistan.
- Increase in area sown under wheat crop.
- Significant increase in Minimum Support Price (MSP) of wheat.

### Negative Factors:

- Less rains during early crop season especially in rainfed areas.
- Shortage of irrigation water supply in some areas of Chenab – Mangla. Command and Sindh during November to January.
- Decrease in DAP off-take during October-November.
- Higher prices of DAP than last year.
- Hailstorm / rains in Multan division during third week of March causing damage to wheat production on limited scale.



## Wheat Crop Estimates 2020-21 by Provincial Crop Reporting Services

During the meeting of Federal Committee on Agriculture (FCA) on 8th April 2021, Provincial Crop Reporting Services reported the estimated wheat production for 2020-21 at level of 26.04 million tons.

FCA: Wheat Production Estimates (2020-21) by Provincial Crop Reporting Services			
Province	Target 2020-21 (M tons)	Estimated Production (M tons)	Provincial Production Share (%)
Punjab	20.0	19.6	75.3
Sindh	4.0	4.0	15.3
Khyber Pakhtunkhwa	1.7	1.2	4.8
Balochistan	1.3	1.1	4.5
<b>Pakistan</b>	<b>27.0</b>	<b>26.0</b>	<b>100</b>



# Kharif Crops 2020-21

## Cotton

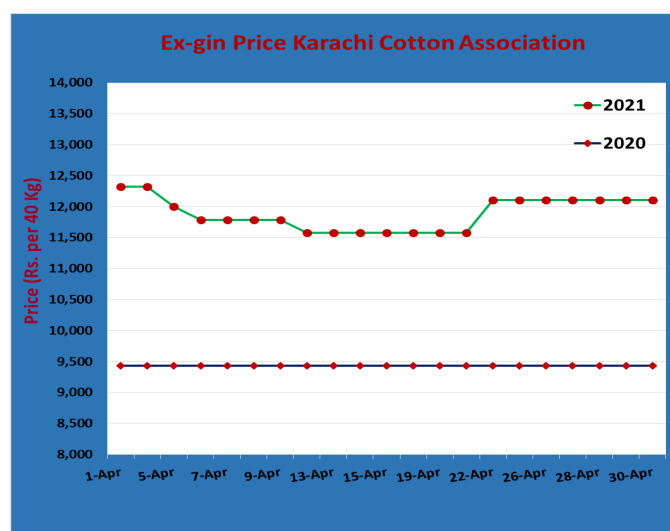
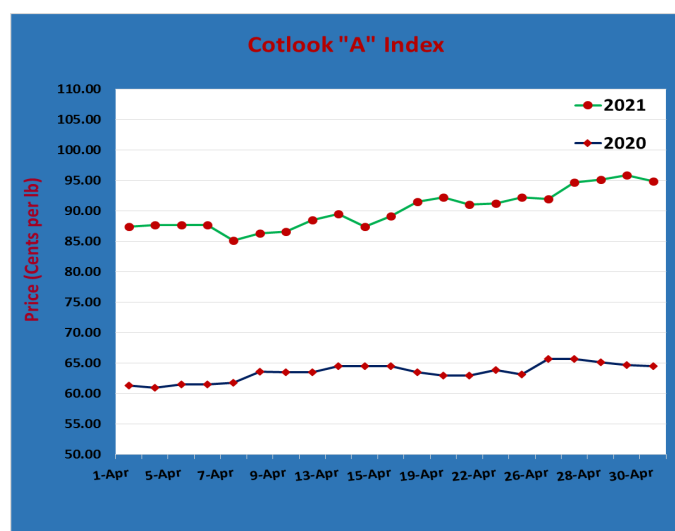
During the year 2020-21, the cotton crop size remained significantly lower mainly due to; a) decrease in area sown, b) low availability of quality cotton seed c) unfavorable weather conditions d) higher insect pest infestation particularly of Pink Bollworm and e) decrease in farmers' net margins owing to higher cost of production.

As per report of Pakistan Cotton Ginning Association (PCGA) on 3rd May 2021, cotton arrivals in ginning factories of Pakistan were 5645.967 thousand bales. During end of April 2020 data was not collected due to COVID-19 pandemic. Comparative statistics were available up to 18th March 2020. By the 18th March 2021, Punjab and Sindh had observed a decreased arrival of 31.19 and 38.51 percent, respectively, as compared to last year.

In the international market, average cotton price during April 2021 was 90.17 cents per lb as compared to average price of 63.46 cents per lb during April 2020, showing an increase of 26.71 cents per lb (up by 29.62 percent).

Cotton Arrivals on 18 <sup>th</sup> March 2021				
Province	2021	2020	Difference	Percent
	Bales			
Punjab	3,507,356	5,097,282	-1,589,926	-31.19
Sindh	2,136,169	3,473,979	-1,337,810	-38.51
Total	5,643,525	8,565,376	-8,571,261	-34.16

In local market, average ex-gin cotton price during April 2021 was higher by about 20.65 percent compared to April 2020. Approximate average ex-gin price during April 2021 was Rs. 11885.6 per 40 kg against Rs. 9431.0 during April 2020 showing an increase of Rs. 2454.6 per 40 kg.



## Proposed Targets of Cotton Crop During 2021-22

During FCA meeting on 8th April 2021, proposed production target of cotton crop 2021-22 were set at 10.90 million bales with an area of 2310.00 (000) hectares. Province wise targets are as under;

Targets 2020-21		
Province	Area (000 Ha)	Production (M Bales)
Punjab	1600.0	6.0
Sindh	640.0	4.6
Khyber Pakhtunkhwa	10.0	0.01
Balochistan	60.0	0.2
<b>Total</b>	<b>2310.0</b>	<b>10.9</b>

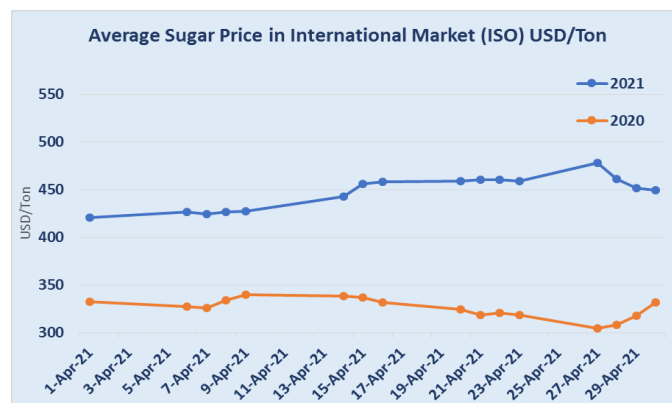
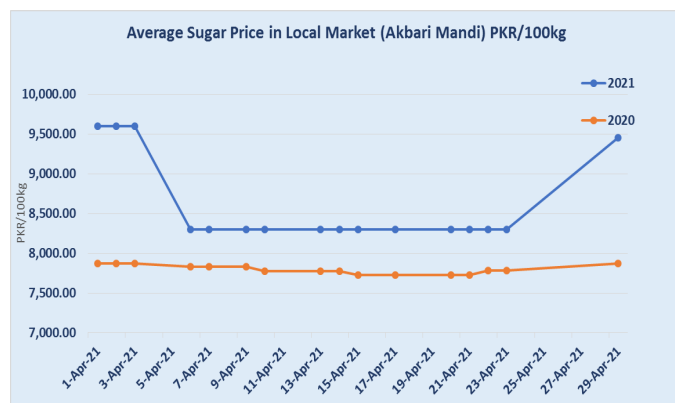
## Sugarcane

Sugarcane crop harvesting has been completed during March in almost all parts of the country.

Sugar price in the international market during April 2021 was approximately 36.8 percent higher compared to April 2020. Average sugar price during April 2021 was 446.36 \$ per ton against the average sugar price of 326.15 \$ per ton during April 2020, showing average increase of 120.21 \$ per ton.

Sugar prices in the local market also remained higher during April 2021 as compared to April 2020. Average sugar price during April 2021 was around Rs. 8773.9 per 100 kg as against the average sugar price of Rs. 7798.06 per 100 kg during April 2020 showing an increase of around Rs. 975.86 per 100 kg (approx. 12.51 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:



## Proposed Targets of Sugarcane Crop During 2021-22

During FCA meeting proposed target of sugarcane crop production were set at 69.749 million tons with an area of 1174.02 000 hectares. Province wise targets are as under;

Targets 2020-21		
Province	Area (000 Ha)	Production (000 tons)
Punjab	753.0	44,906.0
Sindh	310.0	19,000.0
Khyber Pakhtunkhwa	110.1	5,796.8
Balochistan	0.9	47.0
<b>Total</b>	<b>1174.0</b>	<b>69,749.3</b>



## Anticipated Weather & Water Situation for Kharif 2021-22

### Anticipated Water Withdrawal for Kharif 2021 (April-September 2021)

As per FCA meeting on 8th April 2021, Provisional data shows better water supplies during Kharif season (April- September 2021). For Kharif 2021, total water withdrawals at level of 67.60 MAF are anticipated than water withdrawals of 65.11 MAF during Kharif 2020. Province wise withdrawals are given below:

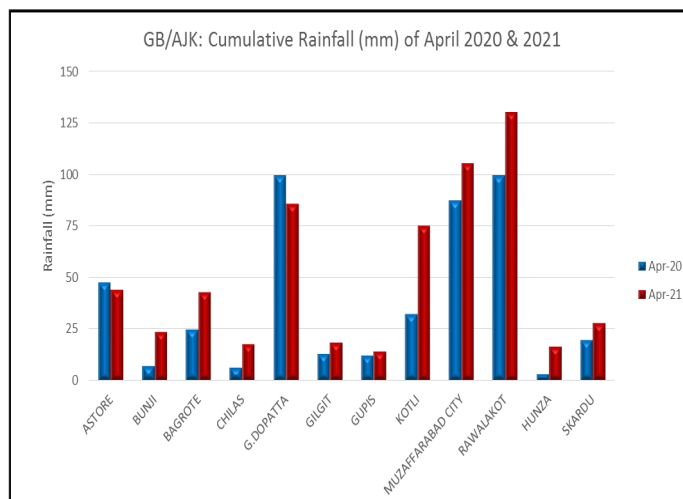
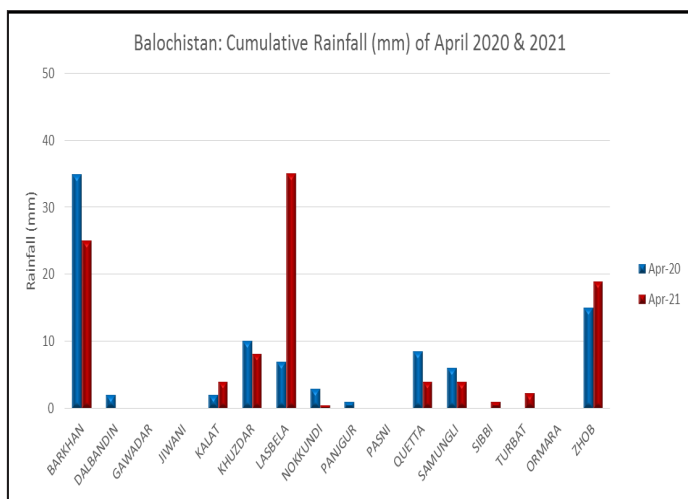
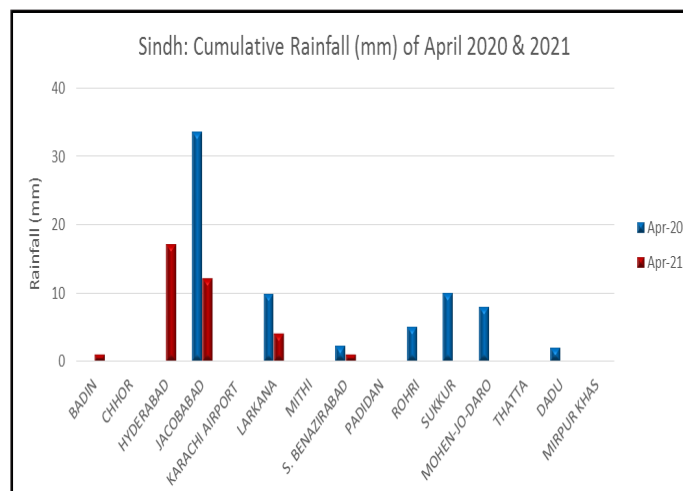
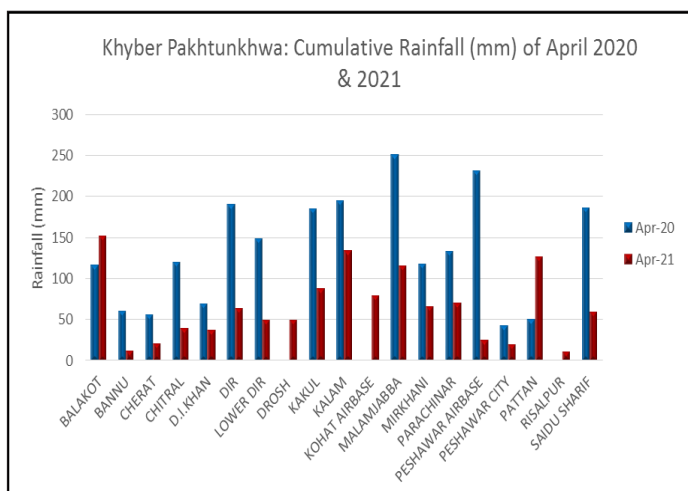
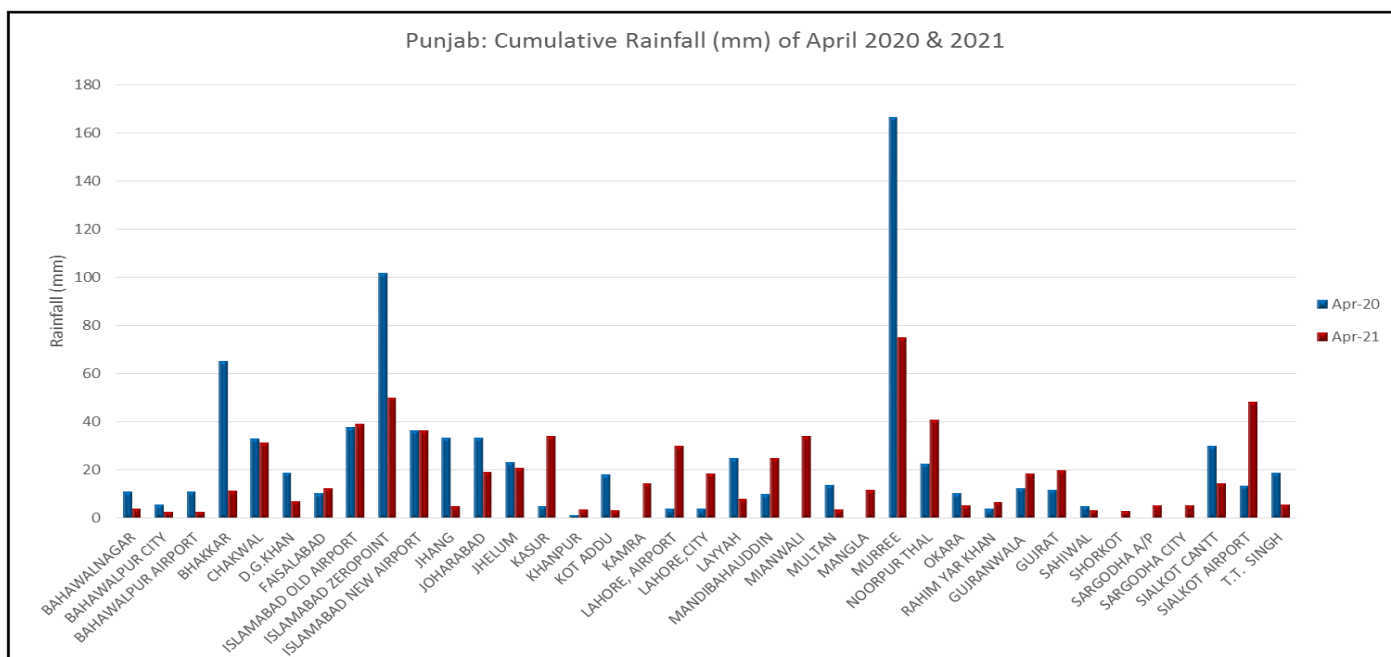
Province	Anticipated (MAF)	Last Year Actual (MAF)	10-year Average (Actual MAF)
Punjab	33.43	33.44	33.45
Sindh	30.48	28.80	28.78
Khyber Pakhtunkhwa	0.82	0.85	0.92
Balochistan	2.86	2.02	1.82
<b>Total</b>	<b>67.60</b>	<b>65.11</b>	<b>64.97</b>

### Weather Future Outlook (April-June 2021)

As per long-term forecast of PMD, below normal rains are expected in most of the major agricultural plains during next three months. Particularly Pothohar and Upper Khyber Pakhtunkhwa may receive lesser rains. However, during the month of June 2021, above normal rains are projected over parts of Khyber Pakhtunkhwa, lower Sindh and Balochistan.

The maximum temperature may remain normal to above normal while minimum temperature is expected to remain above normal during this period. This may result in accelerated snowmelt in Northern areas and subsequently increase in river runoff in upper Indus region.

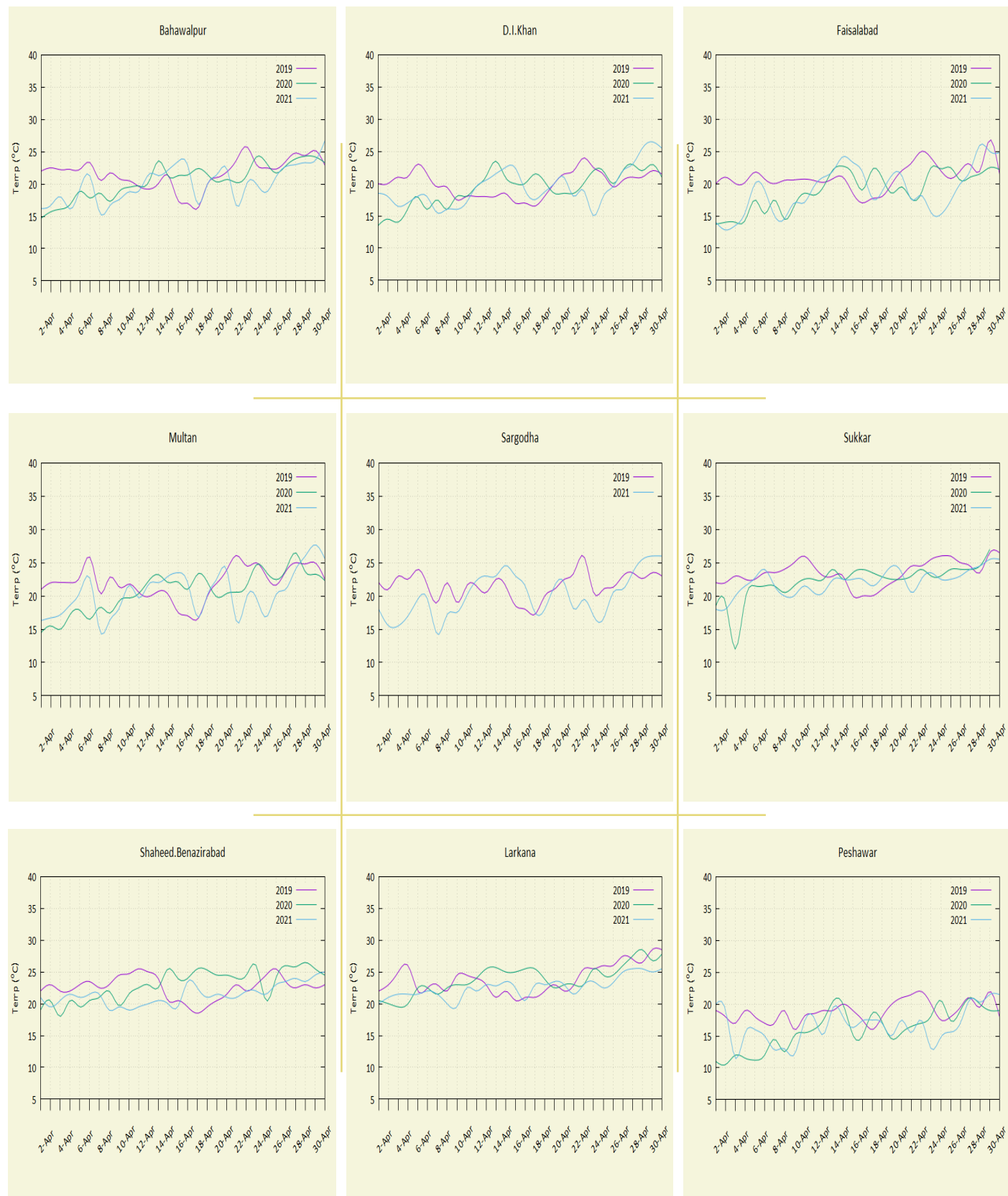
# Monthly Rainfall (mm): April (2020 & 2021)





# Maximum Temperature: April, 2021

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



# Minimum Temperature: April, 2021

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

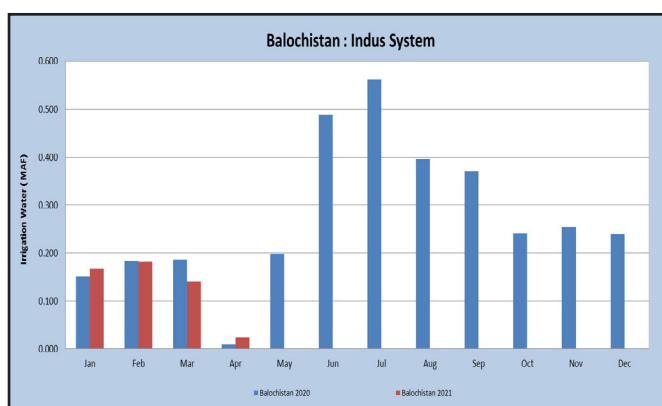
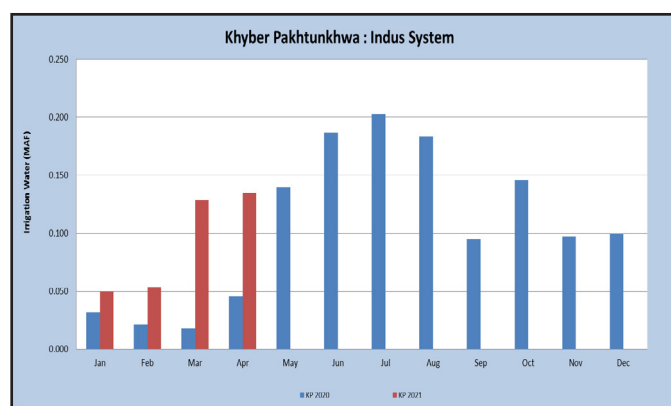
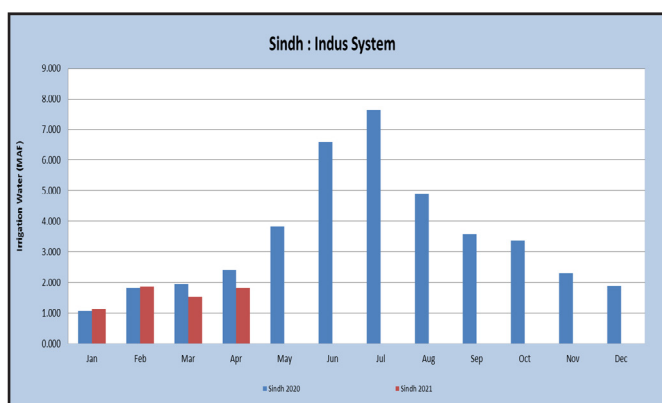
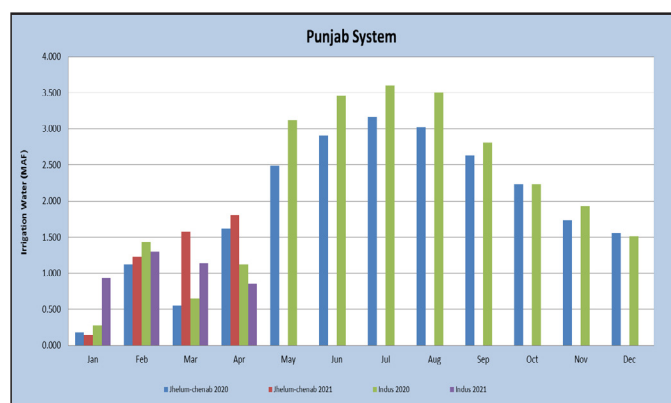


# Irrigation Water Supply: April, 2021

The irrigation water supply during April 2021 was 4.64 MAF against the last year's supply of 5.21 MAF, lower by 0.57 MAF (10.96 percent). During April 2021, as compared to the same time period of last year, the supply in Punjab was 2.66 MAF (lower by 3.10 percent), Sindh was 1.82 MAF (lower by 24.46 percent), Khyber Pakhtunkhwa received 0.13 MAF (higher by 195.65 percent) while Balochistan received water supply of 0.02 MAF (higher by 140.0 percent).

Kharif 2020-21	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	

Source: Indus River System Authority (IRSA)





# Fertilizer Offtake

As per report of NFDC, the month of March 2021 started with opening inventory of 128 thousand tons of Urea. During March 2021, domestic Urea production was 514 thousand tons with total availability of 642 thousand tons. Urea offtake during March remained 343 thousand tons leaving behind closing balance of 298 thousand tons.

The opening inventory of DAP for March 2021 was 54 thousand tons. During March 2021 domestic production of DAP was 66 thousand tons. The total availability of DAP was 201 thousand tons which also includes 81 thousand tons of imported supplies. DAP offtake during March 2021 was 144 thousand tons leaving behind closing balance of 55 thousand tons.

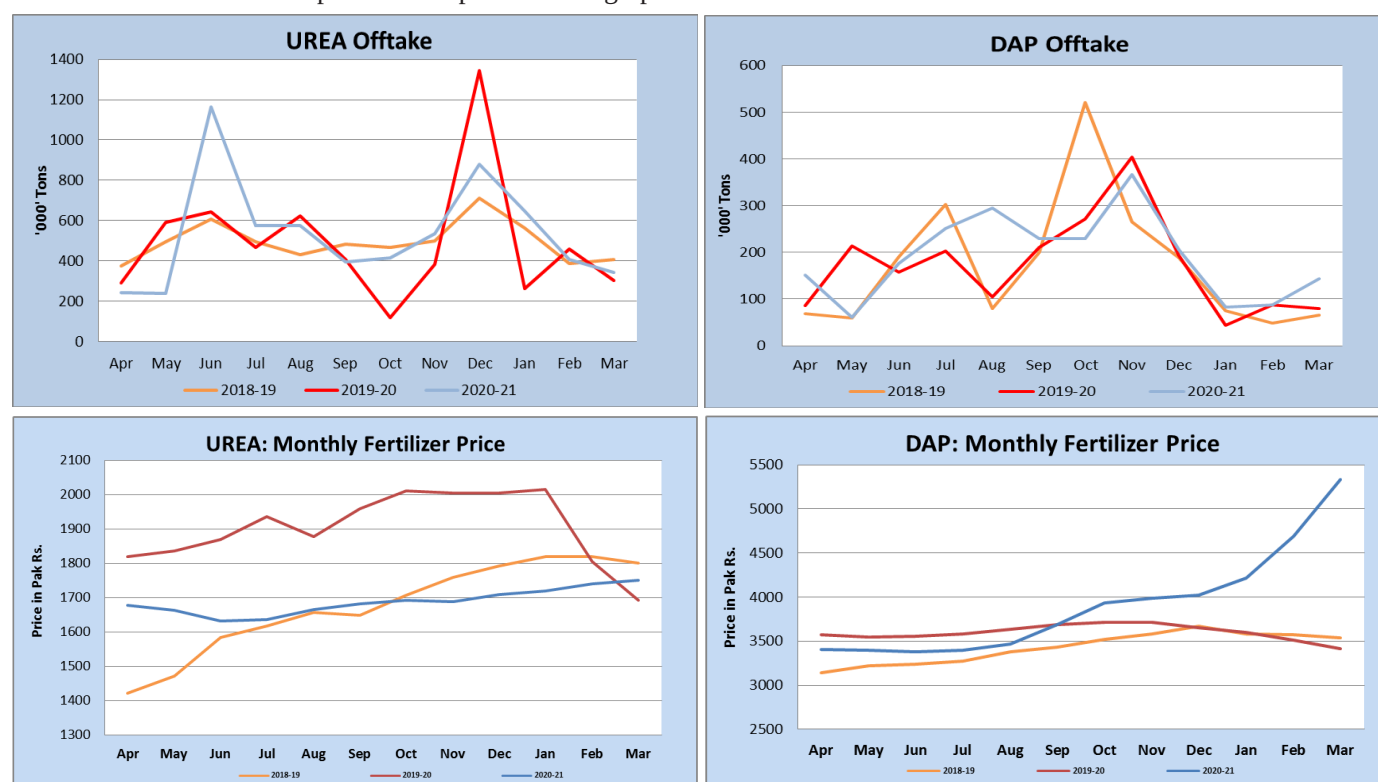
During March 2021, offtake of Nitrogen, Phosphate and Potash increased by 18.7, 62.2 and 87.0 percent, respectively.

Product	Opening Inventory	Domestic Production	Imports	Total Availability	Offtake	Write On/Off	Closing Balance
000 Tons							
Urea	128	514	0	642	343	-1	298
DAP	54	66	81	201	144	-2	55

Month	Fertilizer Offtake Rabi 2020-21				Fertilizer Offtake Rabi 2019-20				% Change			
	Nitrogen	Phosphate	Potash	Total	Nitrogen	Phosphate	Potash	Total	Nitrogen	Phosphate	Potash	Total
	(000 Tons)											
Oct	255.6	123.5	7.3	386.4	122.4	140.7	5.0	268.1	108.8	-12.3	47.7	44.1
Nov	345.5	191.2	4.8	541.6	269.6	201.9	3.9	475.4	28.2	-5.3	23.0	13.9
Dec	481.6	111.8	3.8	597.2	684.8	107.6	4.7	797.2	-29.7	3.9	-19.4	-25.1
Jan	366.8	67.0	5.3	439.0	147.4	28.5	1.3	177.1	148.8	135.3	320.7	147.9
Feb	242.6	60.5	6.1	309.1	259.0	54.8	6.3	320.1	-6.3	10.3	-3.1	-3.4
Mar	206.7	79.3	6.9	292.8	174.1	48.9	3.7	226.7	18.7	62.2	87.0	29.2
Total	1872.1	628.3	34.2	2561.1	1224.2	478.7	14.9	1717.7	55.1	31.3	129.8	49.1

Source: MRR.04/2021 NFDC

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



## زرعی سفارشات (مئی)

### کپاس:-

- 1- گندم کی کٹائی کے بعد کپاس کی کاشت جلد از جلد کی جائے تاکہ بروقت کاشت سے پیداوار پر ہونے والے مثبت اثرات سے فائدہ اٹھایا جاسکے۔
- 2- کسان بھائی اپنے پچھلے تجربات، وقت کاشت، علاقائی موزونیت اور بیماریوں کے خلاف مدافعت رکھنے والی منظور شدہ/ تجویز کردہ اقسام کاشت کریں۔
- 3- زرخیز میرا زمین کو ہموار اور نرم کر کے کپاس کی کاشت کی جائے۔
- 4- شرح آگاہی کی صلاحیت اور طریقہ کاشت کو مد نظر رکھتے ہوئے 10 تا 6 کلو گرام فی ایکڑ استعمال کریں۔
- 5- کپاس کے بیج کو کاشت سے پہلے زرعی زہر لگانے سے فصل ایک ماہ تک رس چوسنے والے کیڑوں سے محفوظ رہتی ہے۔
- 6- اگنی کپاس کو کھادوں کی ضرورت پچھیتی کاشت سے زیادہ ہوتی ہے۔ اس لیے فصل کی حالت، زمین کی زرخیزی اور موسمی حالات کو مد نظر رکھتے ہوئے کھادوں کا متوازن اور متناسب استعمال پیداوار میں اضافہ کا باعث ہوتا ہے۔
- 7- بی ٹی اقسام کے ساتھ نان بی ٹی (روایتی) اقسام بھی کم از کم دس فیصد رقبہ پر ضرور کاشت کریں تاکہ حملہ آور سنٹریوں میں بی ٹی اقسام کے خلاف مدافعت پیدا نہ ہو۔
- 8- پٹریوں پر کاشتہ فصل کو پہلا پانی 3 تا 4 دن بعد جبکہ دوسرا، تیسرا اور چوتھا پانی 6 تا 9 دن کے وقفہ سے لگائیں۔ اس کے بعد فصل کی ضرورت اور پانی کی کمی ظاہر ہونے پر تقریباً دو ہفتہ کے وقفہ سے لگائیں۔
- 9- لائنوں میں کاشتہ فصل کو پہلا پانی 30 تا 35 دن بعد اور بقیہ پانی فصل کی ضرورت اور پانی کی کمی ظاہر ہونے پر مناسب وقفہ (12 تا 15 دن) پر لگائیں۔
- 10- پودوں میں مناسب فاصلہ پودوں کی بہتر نشوونما اور کیڑوں کے بہتر تدارک میں مدد دیتا ہے۔ اس لیے اقسام کی خصوصیات اور وقت کاشت کو مد نظر رکھتے ہوئے پودوں کے درمیان 6 (تقریباً 35 ہزار پودے فی ایکڑ) سے لیکر 12 انچ (تقریباً 17 ہزار پودے فی ایکڑ) تک فاصلہ رکھیں۔
- 11- 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 وائرس کے میزبان پودے کے طور پر ان کے پھیلاؤ میں مددگار ہوتی ہیں۔
- 12- فصل کا باقاعدگی سے معائنہ کریں اور کیڑوں کی معاشی حد عبور ہونے پر فوراً محکمہ زراعت کے مشورے سے پھرے کریں۔

### کماؤ:-

- 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- گوڈی کے عمل سے جڑی بوٹیوں کی تلفی کریں۔ گوڈی کا عمل زمین نرم ہونے کی وجہ سے کماؤ کی جڑوں کو پھیلنے میں مدد دیتا ہے۔
- 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- دانہ دار زہر ڈالنے کے بعد کھیت کو لازمی پانی دیں۔

### بھاریہ مکئی:-

- 1- مناسب وقفے سے آبپاشی کا عمل جاری رکھیں۔ بھر آنے پر کھیت کو ہمیشہ تروترا حالت میں رکھیں لیکن پانی کھزانہ ہونے دیں۔ بصورت دیگر پیداوار کم ہو جاتی ہے۔

- 2۔ اگر زمین کی زرخیزی کم ہو تو پورے پر ایک بوری یوریا فی ایکڑ استعمال کریں۔  
3۔ زنک کی کمی کی صورت میں 21% زنک سلفیٹ 10 کلو گرام یا 33% زنک سلفیٹ 5 کلو گرام فی ایکڑ استعمال کریں۔

## دھان:-

- 1۔ تنے کی سنڈیوں کے پر دانے درجہ حرارت بڑھ جانے سے مارچ آخر یا اپریل کے شروع میں لگتے ہیں۔ اگر اس وقت دھان کی پھیری موجود ہو تو پر دانے اس پر انڈے دے کر اپنی نسل کا آغاز کرتے ہیں۔ اور دھان کی فصل پر سنڈیوں کے شدید حملہ کا خطرہ بڑھ جاتا ہے۔ اس لیے کسان بھائیوں سے گزارش ہے کہ 20 مئی سے پہلے ہر گز دھان کی پھیری کاشت نہ کریں۔  
2۔ دھان کی منظور شدہ اور علاقے کے لیے موزوں اقسام ہی کاشت کریں جبکہ ممنوعہ اقسام 386، مالٹا اور سپرفائن وغیرہ کی کاشت نہ کریں کیونکہ ان اقسام کا چاول انتہائی ناقص معیار کا ہوتا ہے اور عالمی منڈی میں باسستی کی کم قیمت کا باعث بنتا ہے۔  
3۔ بیج سے پھیلنے والی بیماریوں سے بچاؤ کے لیے بیج کو پھپھوندی کش زہر بحساب 2 سے 3 گرام فی کلو گرام ضرور لگائیں تاکہ فصل محفوظ رہے۔  
4۔ صحت مند اور بیماریوں سے پاک بیج استعمال کریں۔ 80% اگاؤ کی صلاحیت کے ساتھ طریقہ کار اور اقسام کے لحاظ سے شرح بیج کچھ یوں رکھیں۔

نمبر شمار	دھان کی اقسام	طریقہ کاشت	شرح بیج کلو گرام فی ایکڑ
1	اری یا موٹی اقسام	تربا کدو کا طریقہ	6-7
		خشک طریقہ	8-10
		راب کا طریقہ	12-15
2	باسستی اقسام	تربا کدو کا طریقہ	4.5-5
		خشک طریقہ	7-6
		راب کا طریقہ	10-12

## گندم:-

- 1۔ گندم کی سنبھال اور ذخیرہ کے دوران خصوصی احتیاط کی جائے تاکہ محنت کا یہ ثمر ضائع نہ ہو۔  
2۔ موسمی حالات سے بذریعہ ریڈیو اور ٹی وی آگاہ رہیں۔ موسم صاف ہونے کی صورت میں کٹائی کا عمل جاری رکھیں۔ البتہ بارش کی صورت میں کٹائی کو روک دیں اور موسم بہتر ہونے کا انتظار کریں۔  
3۔ کٹائی کے بعد بھریاں چھوٹی اور سنوں کا رخ اوپر کی طرف کر کے کھڑا کریں تاکہ بارش ہونے کی صورت میں نقصان کم سے کم ہو۔  
4۔ آئندہ سال کے بیج کے حصول کے لیے صحت مند، جڑی بوٹیوں اور بیماریوں سے پاک، ایک ہی قسم کے کھیت کا انتخاب کریں۔  
5۔ صحت مند بیج کے لیے گہائی کے بعد سیڈ گریڈر کی مدد سے کمزور دانے الگ کر دیں۔  
6۔ سنور کرتے وقت گندم میں نمی کا تناسب 10 فیصد سے زائد نہ ہو۔ اور گودام میں محکمہ زراعت کے مشورے سے مناسب زہر کا سپرے کریں۔  
7۔ چوہوں اور کیڑوں کوڑوں کی تلفی کے لیے 30 تا 35 فی ہزار مکعب فٹ کے حساب سے ایلومینیم فاسفائیڈ کی گولیاں استعمال کریں۔





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