MINISTRY OF NATIONAL FOOD SECURITY AND RESEARCH

SUPARCO

PAK-SCMS BULLETIN

PAKISTAN: SATELLITE BASED CROP MONITORING SYSTEM

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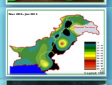
SUPARCO, the National Space Agency of Pakistan, started the program on "Monitoring of Crops through Satellite Technology" during the year 2005. This is a perpetual study encompassing all growing seasons around the year. The purpose of this initiative is to reinforce support for policy makers, planners 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.

INSIDE THIS ISSUE


CROP SITUATION: DECEMBER 2020 01


AGRO-MET CONDITIONS: DECEMBER 2020 06


IRRIGATION WATER SUPPLY SITUATION: DECEMBER 2020 09


FERTILIZER SITUATION 10


AGRI. RECOMMENDATIONS 11

CROP SITUATION: JANUARY 2021

Summary

By the end of January 2021, increasing values of satellite based Normalized Dif¬ference vegetation Index (NDVI) manifested the active growth of Rabi crops. Generally, below normal night temperatures were observed in most parts of the country in second half of the month. Light to moderate precipitation was received in some parts of Punjab, Khyber Pakhtunkhwa, Gilgit- Baltistan and Azad Jammu & Kashmir. Generally dry weather was observed in Sindh and Balochistan.

Wheat crop was at tillering/booting stage depending upon the sowing time. In rain fed areas, wheat crop condition is better than last year due to timely and effective rain spells. In irrigated areas of Pakistan, wheat condition is also generally better due to favorable weather conditions & better farm management practices.

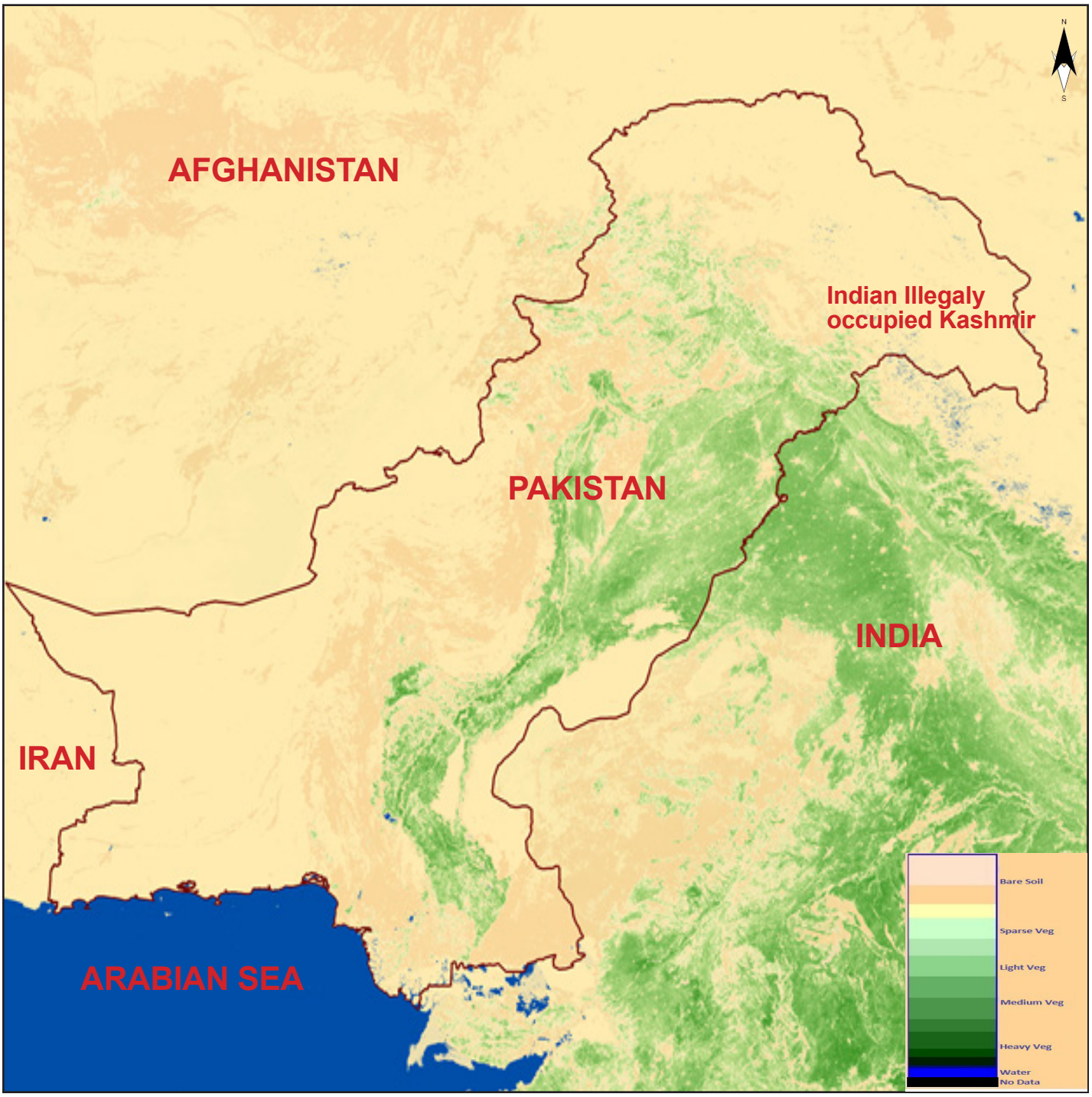
As per report of Pakistan Cotton Ginning Association (PCGA) on 1st February 2021, cotton arrivals in ginning factories of Pakistan were 5571.66 thousand bales showing a decrease of 2915.43 thousand bales (34.35 percent) as com¬pared to the same period of last year. At the end of January 2021, Punjab and Sindh had observed a decreased arrival of 31.46 and 38.53 percent, respectively, as compared to last year. In local market, average ex-gin cotton price during January 2021 was higher by about 15.42 percent compared to January 2020. Approximate average ex-gin price during January 2021 was Rs. 11341 per 40 kg against Rs. 9591 dur¬ing January 2020 showing an increase of Rs. 1749 per 40 kg.

Sugarcane crop harvesting remained in momentum during January in almost all parts of the country due to amplified sugar mills operations. Increased sugarcane support prices by provincial governments (Punjab @ Rs. 200 and Sindh @ 202 per 40 kg) may result in better farmgate returns, thereby encouraging farmers to grow sugarcane crop in coming season.

As per report of Indus River System Authority (IRSA) for January 2021, the irrigation water supply was 2.43 MAF against the last year's supply of 1.72 MAF, up by 41.53percent. As compared to the

same period of last year, the irrigation water supplies were better in Punjab, Sindh, Khyber Pakhtunkhwa and Balochistan.

As per report of National Fertilizer Development Centre (NFDC), total availability of Urea in December 2020 was 1167 thousand tons whereas total availability of DAP was 317 thousand tons. During December 2020, off take of Nitrogen and Potash was decreased by 29.7 and 19.4 percent, respectively, as compared to the same period of last year. Phosphate off take, however, was increased by 3.9 percent as compared to the same period of last year.



Normalized Difference Vegetation Index (NDVI) 31st January, 2021

Rabi 2020-21

Wheat

Wheat crop was at tillering/booting stage depending upon the sowing time. In rain fed areas, wheat crop condition is better than last year due to timely and effective rain spells. Similarly in irrigated area wheat crop growth is better due to favorable weather conditions and better farm management practices.

Prospects of wheat 2020-21 looks much promising this year due to; a) generally increase in wheat area due to significant increase in support price of wheat from last year b) timely sowing of wheat due to early termination of Kharif crops particularly of cotton c) favorable weather conditions d) higher targets to meet food requirements of the country.

Federal cabinet in its meeting held on 10th November, 2020 has fixed wheat support price of Rs. 1650 per 40 kg this year. This showed an increase of more than 20 percent from the last year support price of Rs. 1365 per 40 kg. This increase in support price will increase growers' net margins and help them to have better crop husbandry measures.

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 Mt)**	**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
Pakistan	**9,160.0**	**27,000.0**	**10,631.0**




Kharif Crops 2020-21

Cotton

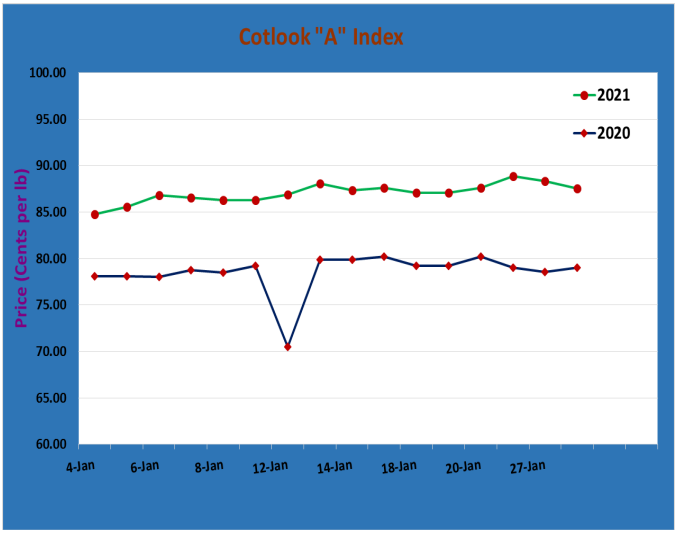
This year the cotton crop size remained significantly lower mainly due to; a) decrease in area sown, b) low quality cotton seed c) unfavorable weather conditions d) higher insect pest infestation particularly of Pink Bollworm and e) decrease in farmers' net margins owing to higher cost of production.

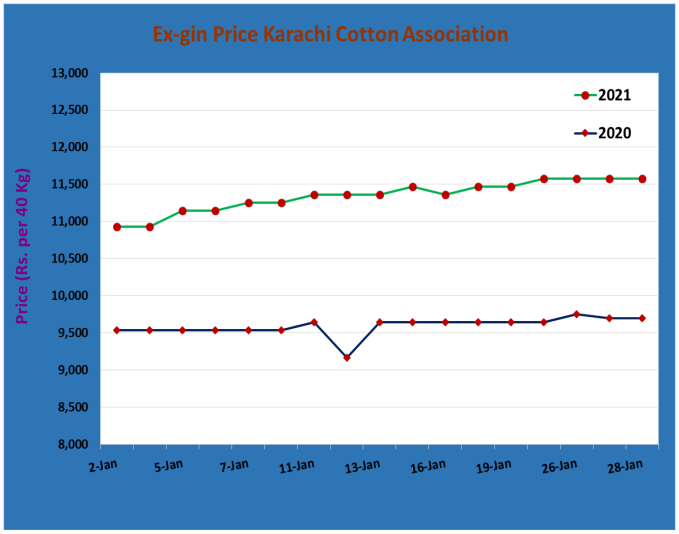
As per report of Pakistan Cotton Ginning Association (PCGA) on 1st February 2021, cotton arrivals in ginning factories of Pakistan were 5571.66 thousand bales showing a decrease of 2915.43 thousand bales (34.35 percent) as com¬pared to the same period of last year. At the end of January 2021, Punjab and Sindh had observed a decreased arrival of 31.46 and 38.53 percent, respectively, as com¬pared to last year.

Cotton Arrivals on 1st February 2021				
Province	2021	2020	Difference	Percent
	Bales			
Punjab	3436731	5014203	-1577472	-31.46
Sindh	2134935	3472901	-1337966	-38.53
Total	5571666	8487104	-1337966	-34.35

In the international market, average cotton price during January 2021 was 87.05 cents per lb as compared to average price of 78.53 cents per lb during January 2020, showing an increase of 8.52 cents per lb (up by 9.78 percent).

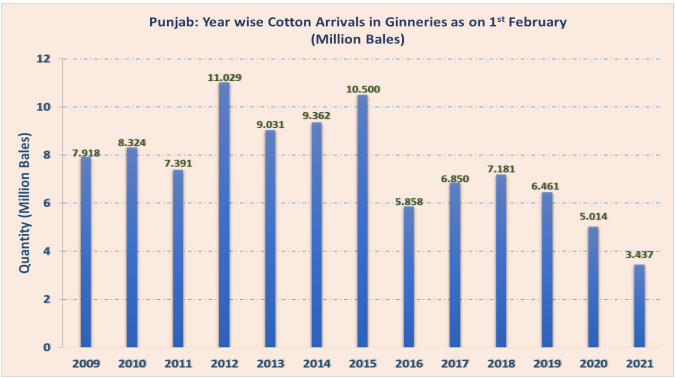
In local market, average ex-gin cotton price during January 2021 was higher by about 15.4 percent compared to January 2020. Approximate average ex-gin price during January 2021 was Rs. 11574 per 40 kg against the average price of Rs. 9699 dur¬ing January 2020 showing an increase of Rs. 1749 per 40 kg. This increase in cotton prices was mainly due to increase of cotton production in the country.

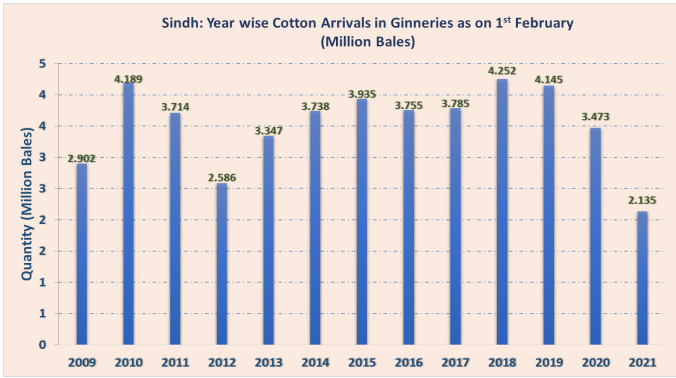




As per PCGA reports of 1st January, 12 years comparison of cotton arrivals shows that Pakistan had maximum cotton arrivals during 2014-15 at the level of 14.435 million bales. During current year total cotton arrivals at national level up to 1st February 2021 were 5.572 million bales. It shows a decreased of 8.864 million bales over the period of last 12 years.

Punjab province had the maximum arrival of 10.500 million bales during the year 2014-15 while the current year arrivals are 3.437 million bales. Sindh province had the maximum arrival of 4.252 million bales during the year 2017-18 and the current year arrivals are 2.135 million bales. This situation necessitates immediate measures for the revival of cotton crop in the country to provide raw material for textile industry.





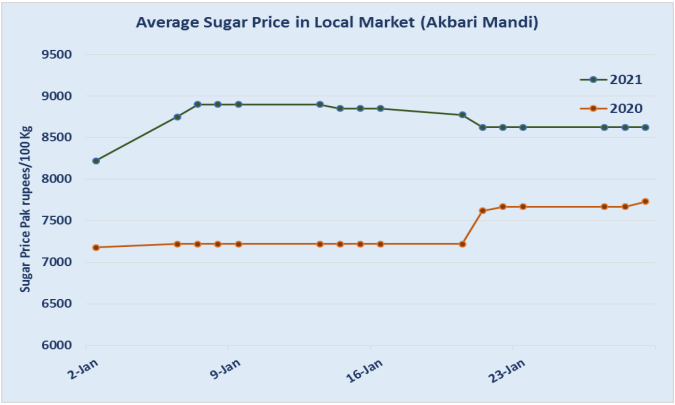
Sugarcane

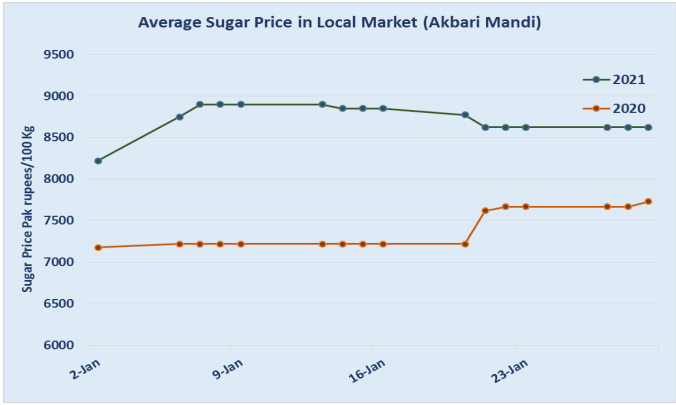
Sugarcane crop harvesting remained in momentum during January in almost all parts of the country due to amplified sugar mills operations. Increased sugarcane support prices by provincial governments (Punjab @ Rs. 200 and Sindh @ 202 per 40 kg) may result in better farmgate returns, thereby encouraging farmers to grow sugarcane crop.

Sugar price in the international market during January 2021 was approximately 13 percent higher compared to January 2020. Average sugar price during January 2021 was 440.4 $ per ton against the average sugar price of 388.8 $ per ton during January 2020, showing average increase of 51 $ per ton.

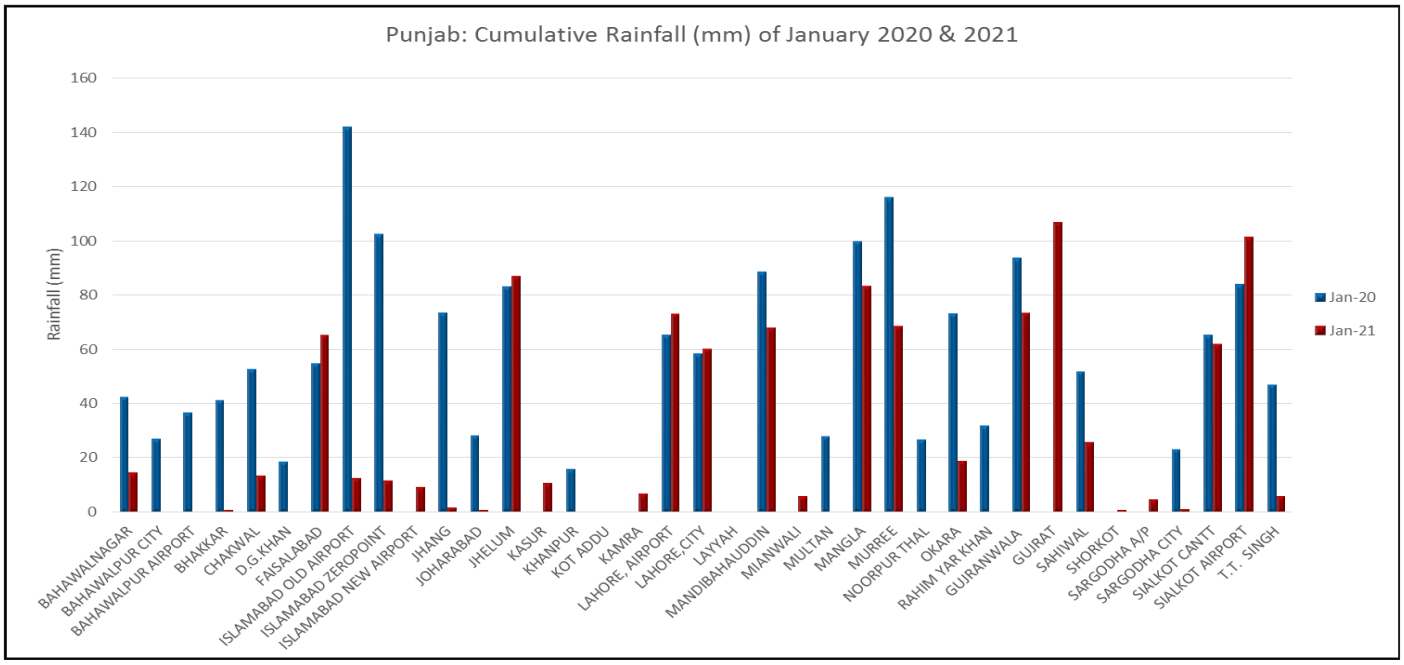
Sugar prices in the local market also remained higher during January 2021 as compared to January 2020. Average sugar price dur¬ing January 2021 was around Rs. 8728 per 100 kg as against the average sugar price of Rs. 7387 per 100 kg showing an increase of around Rs. 1341 per 40 kg (approx. 31 percent higher).

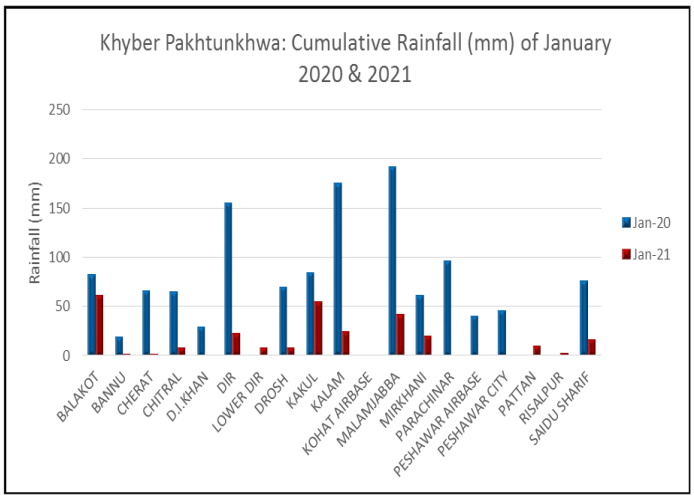
Graphs showing daily white sugar price index in the International market (International Sugar Organization) and daily average sugar price in the local market (Akbari Mandi) are given below:

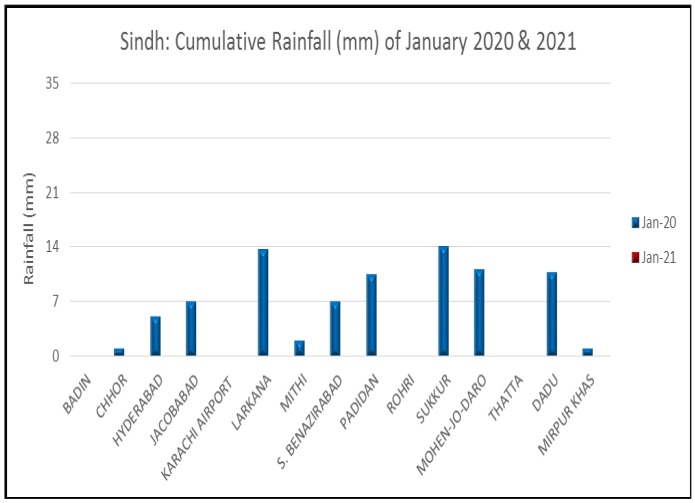


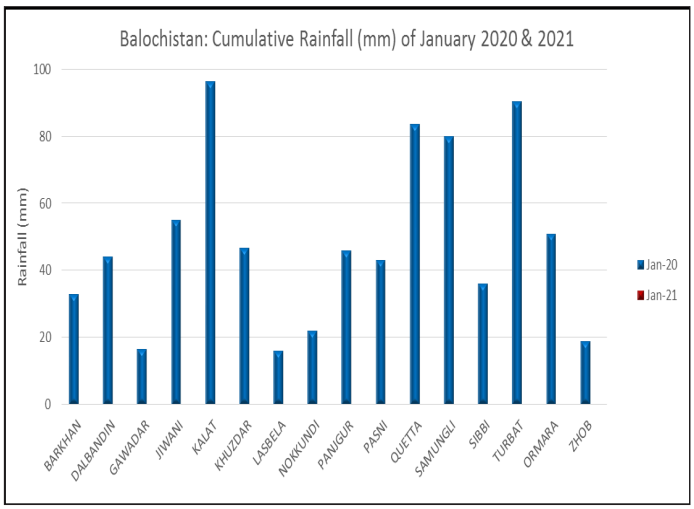


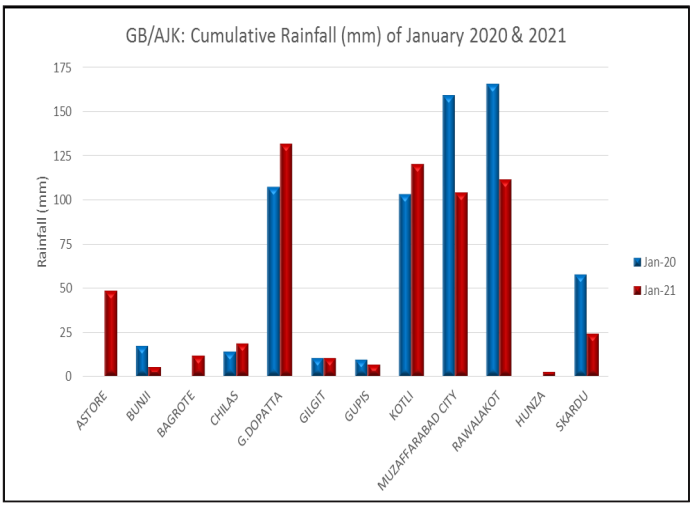
Monthly Rainfall (mm): January (2020 & 2021)





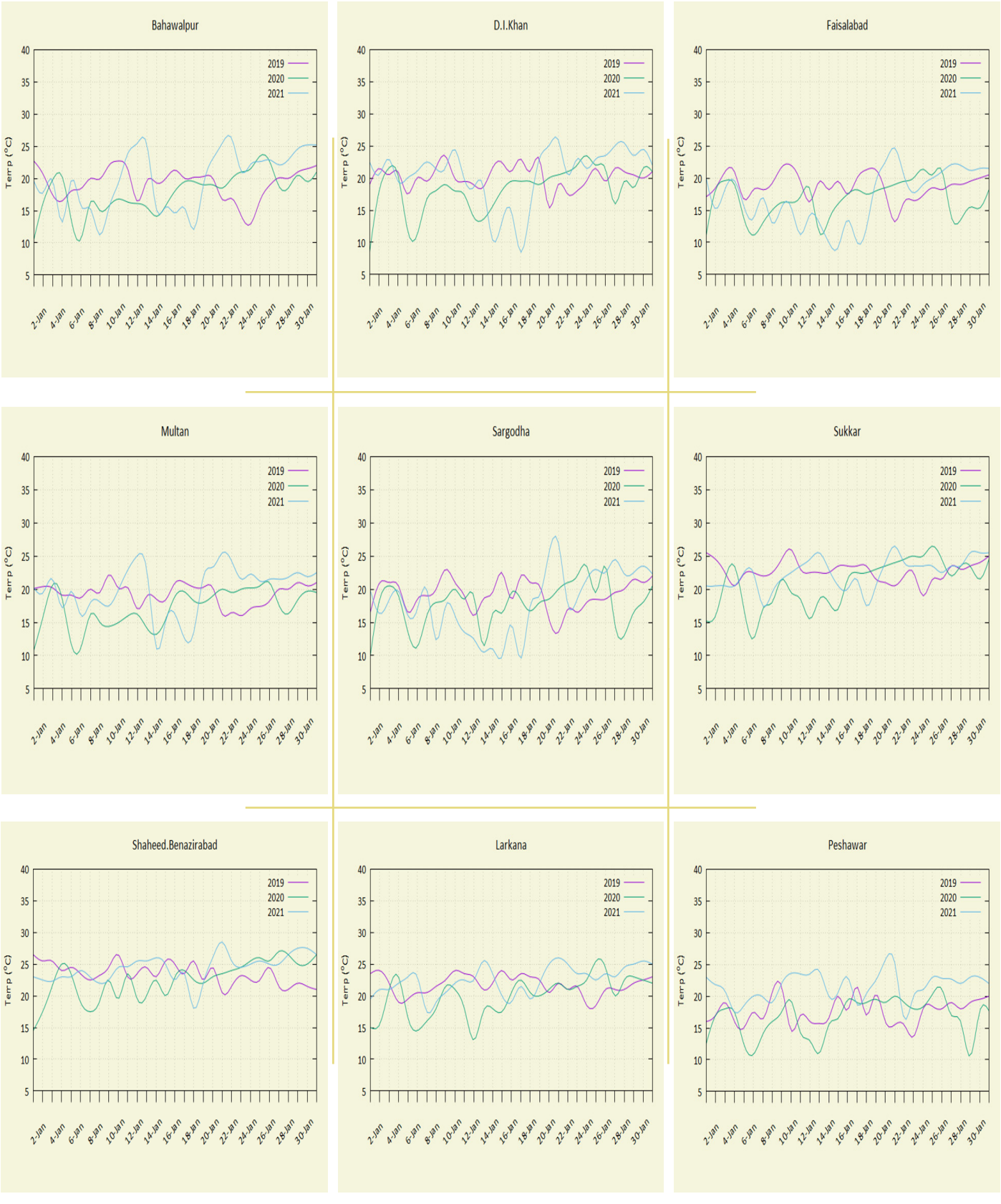






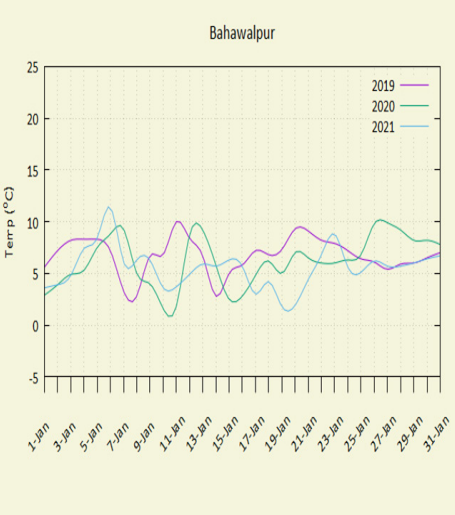
Maximum Temperature: January 2021

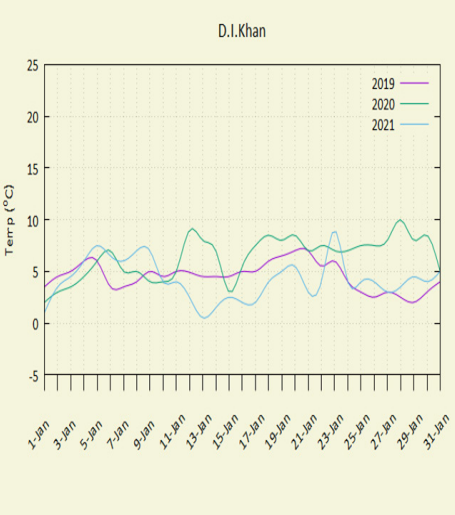
The ranges of maximum temperature (^{0}C) during January 2021 were as follows:

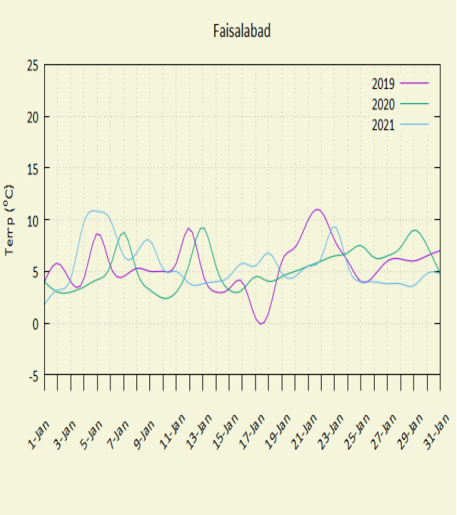


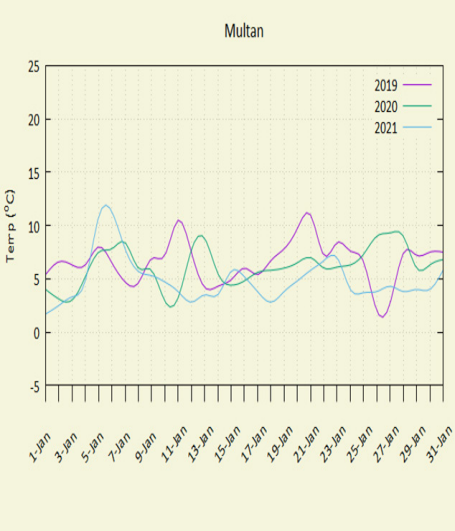
Minimum Temperature: January 2021

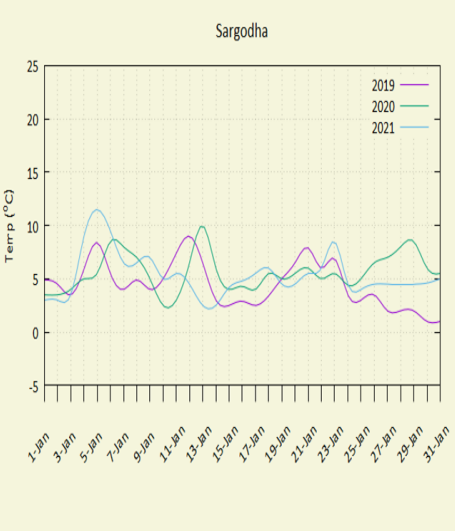
The ranges of minimum temperature (^{0}C) during January 2021 were as follows:

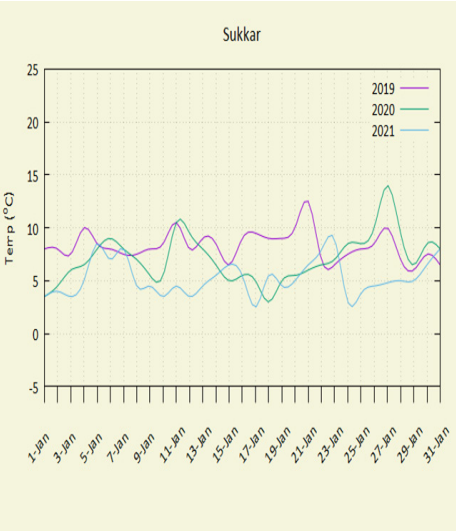


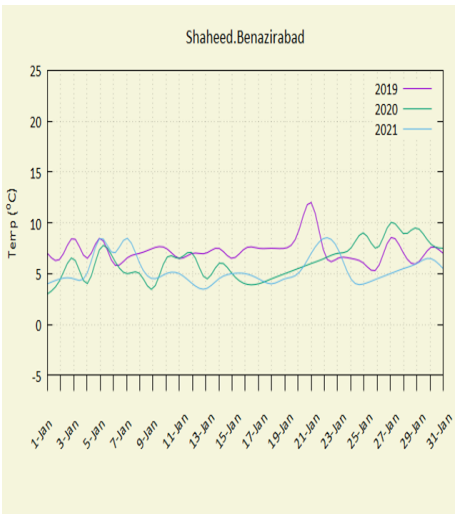


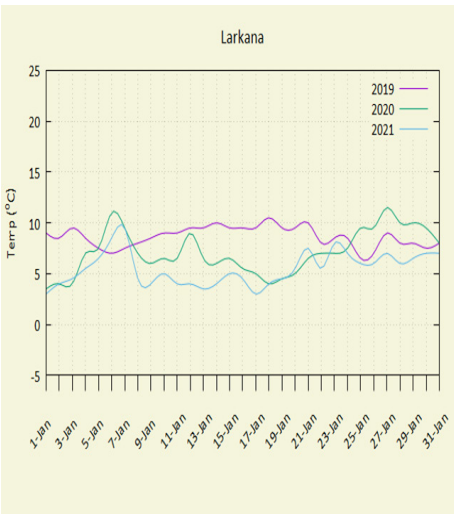


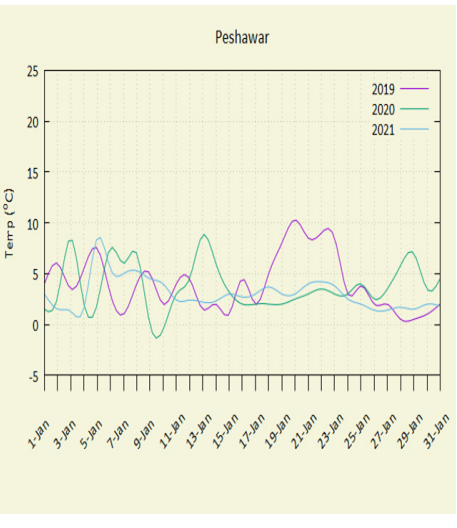










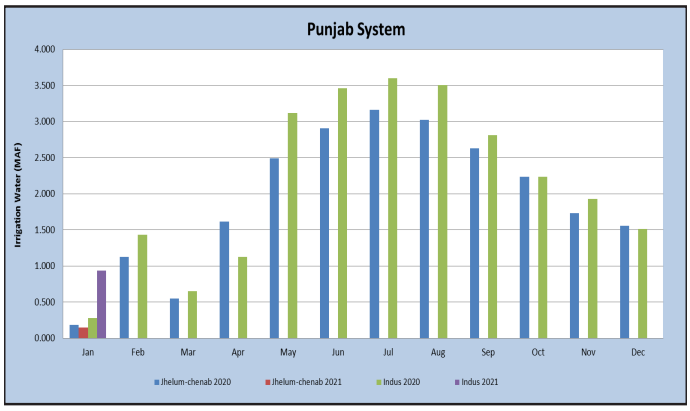


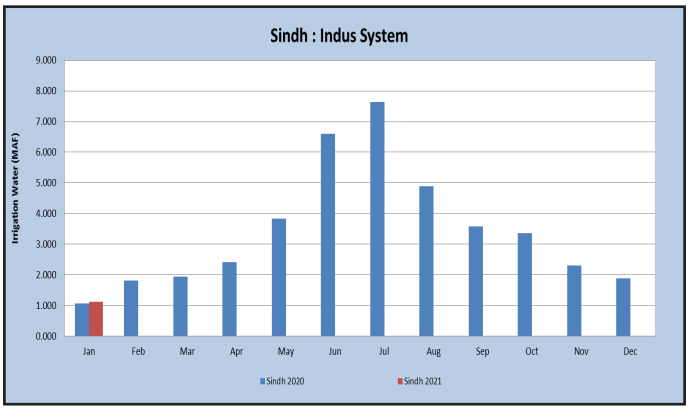
Irrigation Water Supply: January, 2021

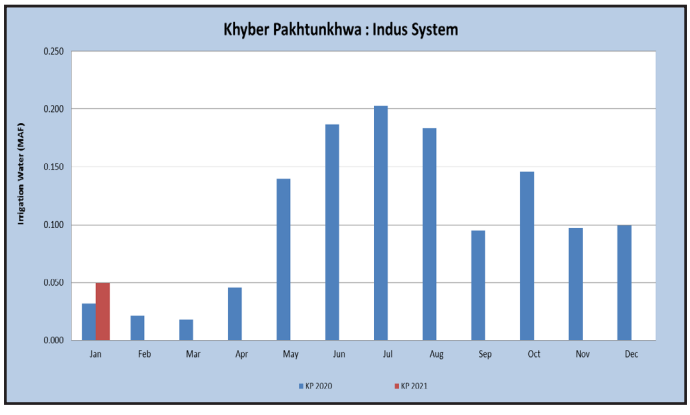
The irrigation water supply during January 2021 was 2.43 MAF against the last year's supply of 1.72 MAF, higher by 0.71 MAF (41.53 percent). During January 2021, as compared to the same time period of last year, the supply in Punjab was 1.09 MAF (higher by 131.88 percent), Sindh was 1.13 MAF (higher by 5.64 percent), Khyber Pakhtunkhwa received 0.05 MAF (higher by 56.25 percent) while Balochistan received water supply of 0.17 MAF (higher by 11.38 percent).

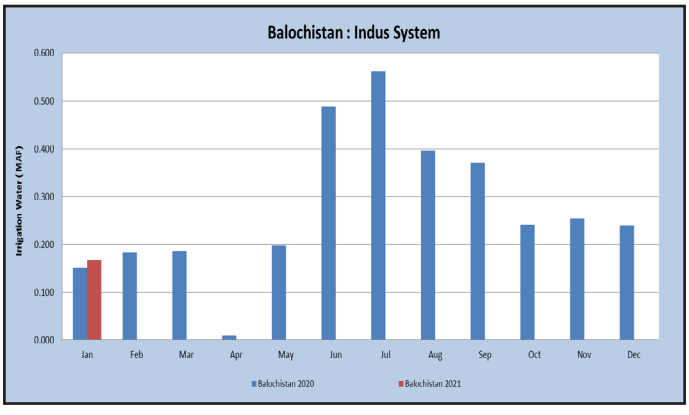
	Month	Year	Punjab			Sindh	Khyber Pakhtunkhwa	Balochistan	Total
			Jhelum-Chenab	Indus	Total				
			Million Acre Feet						
Rabi 2020-21	October	2020	2.23	2.24	4.47	3.37	0.15	0.24	8.23
		2019	1.85	1.90	3.75	3.81	0.09	0.26	7.91
		Change	0.38	0.34	0.72	-0.44	0.05	0.01	0.32
		% change	20.64	18.09	19.35	-11.52	57.48	-7.39	4.05
	November	2020	1.72	1.92	3.65	2.31	0.09	0.25	6.31
		2019	1.88	1.67	3.56	2.32	0.10	0.22	6.22
		Change	-0.15	0.25	0.10	-0.02	-0.01	0.03	0.10
		% change	-8.11	14.89	2.73	-0.77	-9.26	12.28	1.53
	December	2020	1.56	1.51	3.07	1.89	0.10	0.24	5.29
		2019	1.69	1.44	3.13	1.97	0.09	0.24	5.43
		Change	-0.13	0.07	-0.06	-0.08	0.01	0.00	-0.14
		% change	-7.76	4.73	-2.01	-4.08	5.70	0.84	-2.50
	January	2021	0.15	0.94	1.09	1.13	0.05	0.17	2.43
		2020	0.19	0.28	0.47	1.07	0.03	0.15	1.72
		Change	-0.04	0.66	0.62	0.06	0.02	0.02	0.71
		% change	-21.44	233.59	131.88	5.64	56.25	11.38	41.53

Source: Indus River System Authority (IRSA)









Fertilizer Offtake

As per report of NFDC, the month of December 2020 started with opening inventory of 668 thousand tons of Urea. During December 2020, domestic Urea production was 499 thousand tons with total availability of 1167 thousand tons. Urea offtake during December remained 887 thousand tons leaving behind closing balance of 293 thousand tons.

The opening inventory of DAP for December 2020 was 245 thousand tons. During November 2020 domestic production of DAP was 77 thousand tons. The total availability of DAP was 317 thousand tons which also includes 126 thousand tons of imported supplies. DAP offtake during December 2020 was 205 thousand tons leaving behind closing balance of 112 thousand tons.

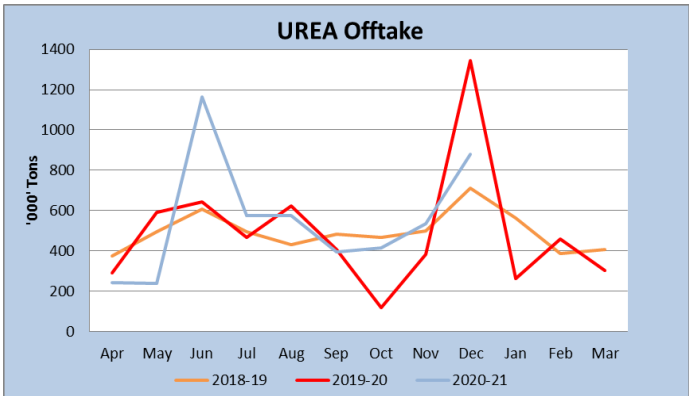
During December 2020, offtake of Nitrogen and Potash decreased by 29.7 and 19.4 percent respectively while for that of Phosphate increased by 3.9 pecent.

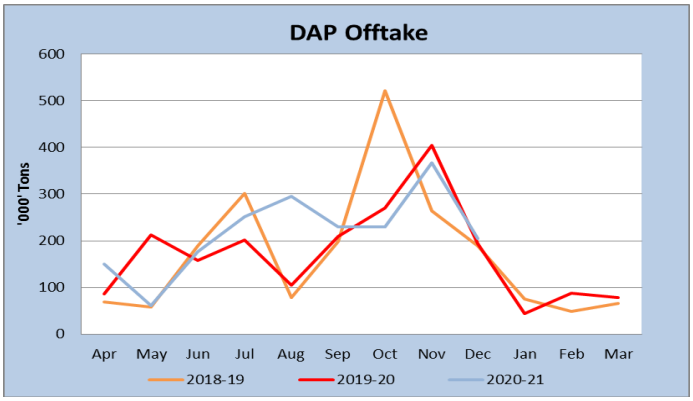
Product	Opening Inventory	Domestic Production	Imports	Total Availibility	Offtake	Write On/Off	Closing Balance
	000 Tons						
Urea	668	499	0	1167	887	13	293
DAP	119	73	126	317	205	0	112

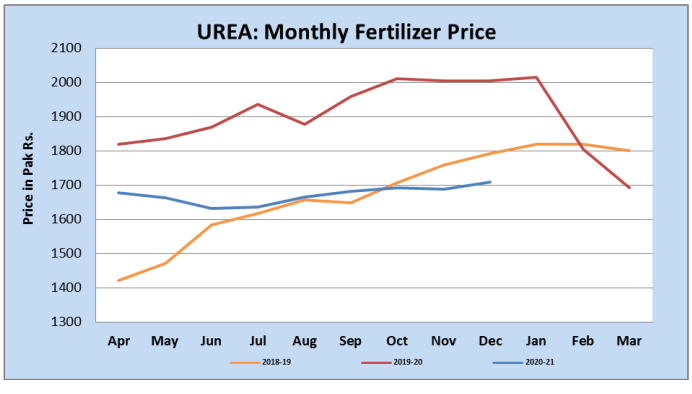
Month	Fertilizer Offtake Rabi 2020-21				Fertilizer Offtake Rabi 2019-20				% Change			
	Nitrogen	Phosphate	Potash	Total	Nitrogen	Phosphate	Potash	Total	Nitrogen	Phosphate	Potash	Total
	(000 Tons)											
Oct	255.6	123.5	7.3	386.4	122.4	140.7	5.0	268.1	108.8	-12.3	47.7	44.1
Nov	345.5	191.2	4.8	541.6	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
Total	1082.7	426.5	16.0	1525.2	1076.8	450.2	13.6	1540.6	-34.7	-26.8	-35.6	-32.6

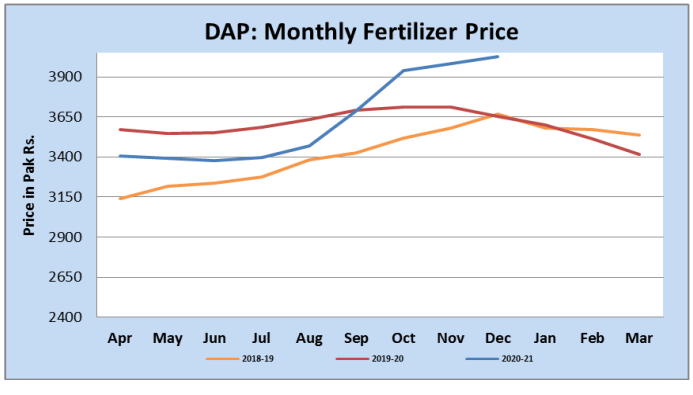
Source: MRR.02/2021 NFDC

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









زرعی سفارشات

(ماہِ فروری)

گندم:۔

1۔گندم کودوسراپانی گوبھ کی حالت پرلگائیں۔اس لیے موزوں وقت اگیتی گندم کے لیے کاشت سے تقریباً 80 تا 90 دن بعد جبکہ پچھیتی کاشتہ گندم کے لیے 70 تا 80 دن کے بعد آتا ہے۔

2۔گندم کو تیسرا پانی دودھیا حالت پر لگائیں۔جو کہ کاشت کے 110 تا 115 دن بعد آتا ہے۔

3۔زیادہ بارشیں گندم کی فصل پر کانگیاری کے حملے اور بیماری کے پھیلاؤ کا سبب بنتی ہیں۔اس لیے فصل پر بیماریوں سے بچاؤ کے لیے بروقت سپرے کریں۔

4۔خشک موسمی اثرات کی صورت میں بہتر ہے دوسرے اور تیسرے پانی کے درمیان گندم کی حالت کو مدِ نظر رکھتے ہوئے ایک اضافی پانی بھی لگائیں۔

5۔اگر فصل کا رنگ دیر سے کاشت اور کم کھاد کی وجہ سے پیلا ہو رہا ہو تو دو کلو گرام یوریا کو 100 لٹر پانی میں ملا کر فی ایکڑ سپرے کریں۔ بارانی علاقہ جات میں 2 کلو گرام کے ساتھ 2 کلو گرام سیلفیٹ آف پوٹاش (ایس او پی) یا میوریٹ آف پوٹاش (ایم او پی) ضرور استعمال کریں۔

کماد:۔

1۔اچھے نکاس والی میرا یا بھاری میرا زمین کماد کی اچھی پیداوار کے لیے موزوں ہے۔

2۔کماد کی کاشت کے لیے زمین کی تیاری پر خصوصی توجہ دیں۔چزل ہل یا مٹی والا ہل ضرور چلائیں تاکہ زمین گہرائی تک نرم ہو سکے۔اس کے بعد 3 سے 4 بار عام ہل چلا کر زمین کو بھربھرا کر لیں اور سہاگہ دیں۔

3۔رجر کے ذریعے سے 8 سے 10 انچ گہری کھیلیاں 4 فٹ کے فاصلے پر بنائیں۔

4۔صحت مند بیج ہی صحت مند فصل کا ضامن ہوتا ہے اس لیے بیماریوں سے پاک صحت مند بیج استعمال کریں۔مونڈھی فصل کی بجائے لیری (یکساں) فصل سے بیج حاصل کریں۔

5۔بیج پر سبز پتوں یا کھوری کا غلاف نہ ہو۔بصورت دیگر دیمک کے حملے کا خطرہ بڑھ جاتا ہے۔

6۔آنکھوں کو زخمی نہ ہونے دیں۔ورنہ بیج کا اگاؤ متاثر ہوتا ہے۔

7۔بروقت کاشت اور دیگر موزوں حالات کی موجودگی میں فی ایکڑ دو آنکھوں والے 25 تا 31 ہزار سے یا 120 من وزن استعمال کریں۔

8۔کاشت سے پہلے بیج کو پھپھوندی کش زہر کے محلول میں 3 تا 5 منٹ تک رہنے دیں۔تاکہ بیماریوں سے محفوظ رہے۔

9۔کماد کی اچھی پیداوار کے لیے علاقائی طور پر تجویز کردہ منظور شدہ اقسام کاشت کریں۔کیونکہ غیر منظور شدہ اور ممنوعہ اقسام کی کاشت نقصان دہ اور بیماریوں کے پھیلاؤ کا سبب بن سکتی ہے۔

10۔ کماد کی کاشت کا وقت فروری سے وسط مارچ تک ہے۔ تاخیر سے کاشت فصل کی پیداوار میں کمی کا باعث بنتی ہے۔

11۔ زمین کی زرخیزی کو مدِ نظر رکھتے ہوئے کھادوں کا مناسب اور متوازن استعمال پیداوار کا کلیدی عنصر ہے۔ کمزور زمین میں 4 بوری یوریا، 3 بوری ڈی اے پی اور 2 بوری پوٹاشیم سلفیٹ جبکہ زرخیز زمین میں 2.5 بوری یوریا، 1 بوری ڈی اے پی اور 1 بوری پوٹاشیم سلفیٹ کی سفارش کی جاتی ہے۔

12۔ مونڈھی فصل کی کھاد کی ضرورت لیرا فصل سے زیادہ ہوتی ہے۔ لہٰذا مونڈھی فصل کے لیے 30 فیصد زیادہ کھاد ڈالنے کی ضرورت ہے۔

13۔ مونڈھی فصل میں کاشتی امور اور موسمی اثرات کی وجہ سے مڈھ مر سکتی ہیں۔ اس لیے پودوں کی تعداد کو پورا کرنے کے لیے اسی قسم کے مڈھ لا کر ناغے پر کرنا انتہائی ضروری ہے۔

14۔ فروری، مارچ کا موسم مونڈھی فصل کے لیے موزوں ہے اور زیادہ اچھا جاڑ بننے میں مدد دیتے ہیں۔ اس لیے مونڈھی فصل رکھنے کا ارادہ ہو تو فصل کی کٹائی فروری یا مارچ میں کریں اور ایک انچ زمینی گہرائی سے کاٹیں۔ تاکہ آنکھوں کو صحت مند ماحول میسر آ سکے۔

مکئی (بہاریہ کاشت):-

1۔ بھاری میرا زمین پر مکئی کاشت کریں۔ تاکہ زیادہ سے پیداوار کے ساتھ منافع بخش فصل کا حصول ممکن ہو۔

2۔ تین یا چار بار ہل اور سہاگہ دے کر زمین اچھی طرح تیار کر لیں۔

3۔ 15 جنوری تا اختتام فروری کاشت کے لیے موزوں وقت ہے۔ جبکہ راولپنڈی ڈویژن (پہاڑی علاقوں کے علاوہ) 20 مارچ تک فصل کاشت کی جا سکتی ہے۔

4۔ اچھی پیداوار کے لیے سفارش کردہ ہائبرڈ اقسام کا 12 تا 15 کلو گرام (ڈرل کاشت کے لیے) یا 8 تا 10 کلو گرام (وٹوں پر کاشت) فی ایکڑ بیج استعمال کریں۔

5۔ زمین کی زرخیزی کو مدِ نظر رکھتے ہوئے 2 تا 2.5 بوری ڈی اے پی اور 1 تا 1.5 بوری پوٹاشیم سلفیٹ فی ایکڑ بوقت کاشت استعمال کریں۔

6۔ ایسے بارانی علاقہ جات جہاں بارش کم ہوتی ہو وہاں ایک بوری یوریا، ایک بوری ڈی اے پی اور آدھی بوری پوٹاشیم سلفیٹ استعمال کریں۔ جبکہ زیادہ بارش والے بارانی علاقوں میں ڈیڑھ بوری یوریا، ڈیڑھ بوری ڈی اے پی اور ایک بوری پوٹاشیم سلفیٹ فی ایکڑ ڈالیں۔

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