





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.

<u>CROP SITUATION: SEPTEMBER 2021</u> <u>Summary</u>

By the end of September 2021, decreasing values of Satellite based Normalized Difference Vegetation Index (NDVI) manifest maturity/harvesting of Kharif crops. Generally, above normal day time temperatures were observed in most parts of the country. 3-4 rain spells with light to moderate precipitation were received in parts of Punjab, Khyber Pakhtunkhwa, Baluchistan, lower Sindh, Gilgit-Baltistan and Kashmir except few heavy rainfall were reported in parts of Punjab and Sindh.

Cotton crop picking was at its peak during the month of September. During current Kharif season, cotton crop showed better crop health than last year. By the end of September 2021, Cotton crop condition was generally satisfactory. According to Pest Warning Department of Punjab, sporadic attack of insect pests particularly Whitefly, Mealy Bug, Pink Boll Worm and infestation of CLCV was reported in some areas of Punjab with an increased infestation as compared to same period of last year.

As per report of Pakistan Cotton Ginning

Association (PCGA) on 1st October 2021, Cotton arrivals in ginning factories of Pakistan were 3846.463 thousand bales as compared to 1907.518 thousand bales during same period of last year showing an increase of 101.65 percent. In Punjab and Sindh, the cotton arrivals during the reported period were higher by 103.03 and 100.77 percent, respectively, as compared to the same period of last year.

In local market, average ex-gin cotton price during September 2021, was higher by about 35.20 percent compared to September 2020. According to Pakistan Central Cotton Committee (PCCC) daily market reports, approximate average exgin price during September 2021 was Rs. 14442.60 per 40 kg against Rs.9358.70 during September 2020 showing an increase of Rs. 5083.90 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

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CROPS SITUATION

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 2021, the irrigation water supply was 12.66 MAF against the last year's supply of 9.48 MAF, increased by 33.51 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 2021 was 837 thousand tons whereas total availability of DAP was 565 thousand tons. During August 2021, off take of Nitrogen and Potash increased by 3.7 and 124.9 percent respectively, as compared to the same period of last year. Whereas a decrease of 33.3 percent was observed in Phosphate offtake as compared to same period of last year.



Normalized Difference Vegetation Index (NDVI) 30th September, 2021

Review of Crop Input Parameters during Kharif Season 2021-22

Weather Situation

Rainfall during this season was less than last year except for the month of July. During the month of July 2021 cumulative rains were approximate double than cumulative rains during July 2020. August and September however, have approximately one third of cumulative rains as compared to cumulative rains during the same months of 2020.



Temperature regime in agriculture areas were generally above normal for monthly mean of minimum temperatures while monthly mean of maximum temperature was generally below normal from April- July 2021. Above normal temperatures prevailed for monthly mean of maximum temperature during August–September 2021.



This overall weather situation during Kharif 2021-22 generally remained favorable for Cotton crop due to less rains that supported crop husbandry measures. This resulted in significant yield increase for cotton crop with a negative effect on Rice and Sugarcane crops.

Fertilizer Situation

Total Nitrogen and Phosphate offtake during (April to August) 2021 decreased by 3.9 and 30.8 percent, respectively as compared to last year. This less offtake particularly of Phosphate has a significant impact on overall Kharif crops productivity. Less offtake is mainly attributed to higher prices during the season as compared to the last year. Average Urea price during April to August 2021 showed an increase of 5.86 percent as compared to the same period of last year. Similarly average DAP price was 64 percent higher than last year during April-August. Graphs showing offtake and prices are given below:



Irrigation Water Suplies during April-September 2021

At the start of Kharif season (April-July 2021), irrigation water supply was 38.01 MAF against the last year's supply of 43.62 MAF down by 5.61 MAF as compared to last year. This indicates a decrease in irrigation water supply of 12.86 percent compared to last year. This situation, however was improved during the months of August and September 2021 with higher irrigation water supply of 26.04 percent than last year thus having a non-significant cumulative difference of 0.03 percent than last year.



Kharif Crops 2021-22

Cotton Crop 2021-22

Cotton crop picking was at its peak during the month of September. During current Kharif season, Cotton crop showed better crop health than last year. By the end of September, 2021 Cotton crop condition was generally satisfactory.

As per report of Pakistan Cotton Ginning Association (PCGA) on 1st October 2021, Cotton arrivals in ginning factories of Pakistan were 3846.463 thousand bales as compared to 1907.518 thousand bales showing an increase of 101.65 percent. In Punjab and Sindh, the cotton arrivals during the reported period were higher by 103.03 and 100.77 percent, respectively, as compared to the same period of last year. The details of cotton arrivals are given below:

Province	2021	2020	Diffe	rence
		Percent		
Punjab	1495.878	736.760	759.118	103.03
Sindh	2350.585	1170.758	1179.827	100.77
Total	3846.463	1907.518	1938.945	101.65

Source: PCGA

According to Pest Warning Department Punjab, sporadic attack of insect pests particularly Whitefly, Mealy Bug, Pink Boll Worm and infestation of CLCV were reported in some areas of the Punjab. There is an increased infestation as compared to the same period of last year. Situation of Punjab province in comparison to last year is given below:



Source: Pest Warning & Quality Controls of Pesticides, Punjab

Satellite based analysis shows a lesser impact of insect pressure on Cotton crop than last year. This may be due to less rains during July-August than last year in Cotton zone and better pest management by farmers due to attraction of higher returns this year. Pink Boll Worm, however can affect cotton production due to higher temperatures at the end of crop season this year. Pink Boll Worm, however can affect cotton production due to higher temperatures at the end of crop season.

CROPS SITUATION

Market Prices for Cotton during September 2021

According to PCCC daily market reports, in the international market, average cotton price during September 2021 was 103.49 cents per lb as compared to average price of 70.83 cents per lb during September 2020, showing an increase of 32.66 cents per lb (up by 31.55 percent).

In local market, average ex-gin cotton price during September 2021 was higher by about 35.20 percent compared to September 2020. Approximate average ex-gin price during September 2021 was Rs. 14442.60 per 40 kg against Rs. 9358.70 during September 2020 showing an increase of Rs. 5083.90 per 40 kg.



Sugarcane Crop 2021-22

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

Sugar price in the international market (White Sugar Price Index) during September 2021 was approximately 27.52 percent higher compared to September 2020. Average sugar price during September 2021 was 501.23 USD per ton against the average sugar price of 363.27 USD per ton during September 2020, showing average increase of 137.95 USD per ton.

Sugar prices in the local market (Akbari Mandi) also remained higher during September 2021 as compared to September 2020. Average sugar price during September 2021 was around Rs. 10391.0 per 100 kg against the average sugar price of Rs. 9126.67 per 100 kg showing an increase of around Rs. 1264.33 per 40 kg (approx. 12.16 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:



Rice Crop 2021-22

Rice crop productivity may enhance this year due to increase in area sown. However, higher temperatures during August-September than normal may slightly affect the crop productivity. Harvesting of early sown coarse Rice has been started in most parts of country.

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



Source: PMD

AGRO-MET CONDITIONS

Maximum Temperature: September, 2021

The ranges of maximum temperature (^oC) during September 2021 were as follows:



Minimum Temperature: September, 2021

The ranges of minimum temperature (^oC) during September 2021 were as follows:



Irrigation Water Supply: September, 2021

The irrigation water supply during September 2021 was 12.66 MAF against the last year's supply of 9.48 MAF, higher by 3.18 MAF (33.51 percent). During September 2021, as compared to the same time period of last year, the supply in Punjab was 6.29 MAF (higher by 15.69 percent), Sindh was 5.76 MAF (higher by 60.98 percent), Khyber Pakhtunkhwa received 0.16 MAF (higher by 66.67 percent) while Balochistan received water supply of 0.45 MAF (higher by 21.39 percent).

	Month	Year	Pun	jab		Sindh	Khyber Dakhtunkhya	Balochistan	Total		
			Jhelum-Chenab	Indus	Total	Siliuli	Kilyber Pakiitulikiiwa	Balochistan			
			Million Acre Feet								
		2021	1.81	0.85	2.66	1.82	0.13	0.02	4.64		
	April	2020	1.62	1.13	2.75	2.41	0.05	0.01	5.21		
	Арги	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		
		2021	2.53	2.56	5.10	2.44	0.18	0.12	7.84		
	Ман	2020	2.49	3.12	5.61	3.83	0.14	0.20	9.78		
	Iviay	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		
		2021	2.86	3.00	5.85	5.05	0.20	0.39	11.49		
	Jun	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		
f 2021-22		% 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		
Char		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		
		2021	3.34	3.52	6.86	6.86	0.18	0.51	14.40		
	Aug	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		
		2021	2.93	3.36	6.29	5.76	0.16	0.45	12.66		
	San	2020	2.63	2.81	5.44	3.58	0.10	0.37	9.48		
	Sep	Change	0.31	0.55	0.85	2.18	0.06	0.08	3.18		
		% change	11.63	19.48	15.69	60.98	66.67	21.39	33.51		
		2021	13.60	13.24	26.84	23.15	0.90	1.52	52.41		
		13.37	13.37	14.07	27.44	25.13	0.77	1.59	54.92		
	Total	Change	0.23	-0.83	-0.60	-1.98	0.13	-0.07	-2.52		
		% change	1.70	-5.90	-2.19	-7.87	16.79	-4.15	-4.58		

Source: Indus River System Authority (IRSA)





Fertilizer Offtake

As per report of NFDC, the month of August 2021 started with opening inventory of 321 thousand tons of Urea. During August 2021, domestic Urea production was 515 thousand tons with total availability of 837 thousand tons. Urea offtake during August remained 649 thousand tons leaving behind closing balance of 187 thousand tons.

The opening inventory of DAP for August 2021 was 407 thousand tons. During August 2021 domestic production of DAP was 77 thousand tons. The total availability of DAP was 565 thousand tons which also includes 82 thousand tons of imported supplies. DAP offtake during August 2021 was 187 thousand tons leaving behind closing balance of 378 thousand tons.

During August 2021, offtake of Nitrogen and Potash increased by 3.7 and 124.9, respectively and that of Phosphate decreased by 33.3.

Product	Opening Inventory	Domestic Production	Imports	Total Availibility	Offtake	Write On/Off	Closing Balance			
	000 Tons									
Urea	321	515	0	837	649	-1	187			
DAP	407	77	82	565	187	0	378			

	Fertilizer Offtake Kharif 2021-22				Fertilizer Offtake Kharif 2020-21				% Change			
Month	Nitrogen	Phosphate	Potash	Total	Nitrogen	Phosphate	Potash	Total	NI:	Dhaarbata	Detech	Tradal
	(000 Tons)								Nitrogen	Phosphate	Potash	Total
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
Aug	374.3	110.0	10.8	495.1	361.0	164.9	4.8	530.7	3.7	-33.3	124.9	-6.7
Total	1569.0	364.3	27.0	1960.3	1626.0	526.5	20.3	2172.8	-3.5	-30.8	32.7	-9.8
Source: MRR.09/2021 NFDC										1 NFDC		

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



Source: MRR.09/2021 NFDC

زرعی سفار شات

کیاس:-1۔ نائٹر وجن کی کمی کی صورت میں 2 کلو گرام یوریافی ایکڑ 100 لیٹریانی میں ملا کر سپر ہے کریں۔ پچل گرنے کی صورت میں زنک اور بوران کی بھی مناسب مقدار ملا کرسیرے کریں۔ 2۔ ستمبر میں کیڑوں کاحملہ زیادہ شدید ہوجاتا ہے۔ اس لیے ہفتے میں دوبار پیپٹ سکاؤٹنگ ضرور کی جائے اور معاشی حد عبور ہونے پر محکمہ زراعت کے مشورے سے مناسب زہر وں کاسیرے کریں۔ 3۔ سپرے صبح پاشام کے وقت کرنا بہتر ہے کیونکہ دو پہر میں سپرے کرنے سے چھلنے کااندیشہ ہوتا ہے اور زہر کی افادیت کم ہونے سے مؤثر کنزول تہیں ملتا۔ 4۔ وائر س کے حملے ہونے پر آغاز ہی سے کھاداوریانی کے مناسب استعال پر توجہ دیناضر ور می ہے۔ تاکہ تیزی سے بڑھو تری ہواور وائر س کے نقصانات کم -0% 5۔ا گرفصل بڑھو تری زیادہ کررہی ہواور پھل کی مقدار کم ہو توالیی صورت میں 100 ملی لیٹریپی کواٹ کلورائید کاسپر ے کریں۔ 6۔ چنائی کامناسب ترین دورانیہ صبح 9 بچے سے لیکر شام 4 بچے تک ہے۔اس لیے کو مشش کی جائے کہ صرف اس دوران ہی چنائی کی جائے تاکہ نمی کی وجہ سے کیاس بدر نگ اور خراب نہ ہو۔ 7۔ چنائی کے لیے سوتی کپڑااستعال کریں اور چھٹی کو آلا نشوں مثلاً نمی، سر کے بال، رسیاں، خشک پتوں وغیر ہے صاف رکھنے کے لیے مناسب اقدامات کے جاس ۔ 8۔ چنائی کے بعد پھٹی کوایک بار دھوپ ضر ور لگوائیں تا کہ نمی کو مناسب سطح پر لایا جا سکے اور بارش کی صورت میں چنائی روک دیں۔ دهان:-

1۔اگردھان کے پتے زنگ آلودہ دکھانی دیں توزنک کی کی کا علامت ہو سکتی ہے۔ایسی صورت میں منتقلی کے بعد سوکادیں اورزیادہ کی کی صورت میں 10 کلو گرام زنگ سلفیٹ (×21) کاچھٹہ کھڑے پانی میں دیں۔ 2۔ کھیت میں سنے کی سنڈی یا پیۃ لپیٹ سنڈی کاحملہ نظر آنے کی صورت میں پیسٹ سکاؤٹنگ کے بعد معاشی نقصان کی حد کومد نظر رکھتے ہوئے زہر وں کا استعال کریں۔ 3۔ دھان کی مختلف بہاریوں کے لیے مندر حہ ذیل تدابیر پر عمل پیراہوں۔

تدايير	بیاری				
1 ۔ پیچ کو پھپھوندی کش زہر لگا کر استعال کریں۔	ير تيز				
2۔ متاثرہ پو دوں کو فوراً نکال دیں۔	بکا تی				
1۔دھان کے کھیتوں میں پانی کی سطح 3سے 5 سینٹی میٹر تک ہو۔اس سے زائد پانی نقصان دہ ہے۔					
2۔ متاثرہ کھیت سے دوسرے کھیت میں پانی نہ جانے دیں۔					
3۔ بیار پودوں کو تلف کردیں۔	3				
4۔ شدید حملے کی صورت میں کاپر آکسی کلورائیڈ بحساب 3 گرام فی لیٹر پانی یابورڈ مکسچر 1:1:120 کے	جرايتي جلساو				
تناسب سے سپرے کریں۔ یعنی ایک کلو گرام نیلا تھو تھا، ایک کلو گرام ان بجھاچو نااور 120 لیٹر پانی میں ملا					
کراستعال کریں۔اور مزید رہنمائی کے مقامی محکمہ زراعت کے عملے سے مشورہ کریں۔					
گو بھر سے لیکر دانہ بننے تک کھیت میں پانی کھڑار کھیں۔	دهان کا به بکا				
بیاری سے پاک بیج استعال کریں اور حملے کی صورت میں محکمہ زراعت کے مشورے سے پھیچوند کی کش					
ز ہر وں کاسپر <i>بے کریں</i> ۔	پول پر جورے دھیے				

کماد:۔ 1۔ ستبر کاشت کے لیے زئین کی تیار کیاور محکمہ زراعت کی منظور کر دہ اور مقامی طور پر سفارش کر دہ اقسام کا انتخاب کریں۔ 2۔ بروقت کاشت بحا احجی پید اوار کی ضامن ہے۔ اس لیے ماہ ستبر میں کماد کی کاشت تکمل کر لیں۔ 3۔ فرور کی کاشتہ فصل یامونڈ ھی پر گڑوؤں کا حملہ ہو سکتا ہے۔ اس لیے فصل کے معائنہ کے بعد معا شی نقصان کی حد کو مد نظر رکھتے ہوئے مناسب زہر ول کا ستعمال کریں۔ 4۔ بیار یوں سے متاثرہ پودوں کو نکال دیں اور نہ ہی آئندہ فصل کا فتخاس کریں اور نہ دی اس زیر کی اس خطر رکھتے ہوئے مناسب زہر ول ملکی:۔ 2۔ موجوں کو گر نے سے محفوظ کرنے کے لیے پودوں کے ساتھ مٹی پڑھا دیں۔ 1۔ پودوں کو گر نے سے محفوظ کرنے کے لیے پودوں کے ساتھ مٹی چڑھا دیں۔ 2۔ موسمی حالات کو مد نظر رکھتے ہوئے مناسب وقعہ سے آپا چی کریں۔ زائد پانی کی صورت میں نکاس کا ہند وہ بھی مدد گار ہوتی ہیں۔ اس 2۔ موسمی حالات کو مد نظر رکھتے ہوئے مناسب وقعہ سے آپا چی کریں۔ زائد پانی کی صورت میں نکاس کا ہند وہ ہے تھی کریں۔ اس 2۔ موسمی اور اس مواد پانی میں حصہ دار بن کر پودوں کو ماتھ میں پڑیں پڑی کا ہیں اور کی دوں سے تک کریں۔ 3۔ میں ای کو راک ، ہوا، پانی میں حصہ دار بن کر پودوں کو کر ور کرتی ہیں۔ زائد پانی پڑی پڑی کے بال کا ہوتی کریں۔ 3۔ لیے ان پر خصوصی تو جہ دیں۔ 4۔ سیکی سند کی کے مطل کی صورت میں دانے دار زہر وں کا ساستعال کریں اور اس کے پید کو پائی لگوں ہے کھی کر ہیں۔ 4۔ سیکی سند کی کے مطل کی صورت میں دانے دار زہر وں کا ساستعال کریں اور اس کے لید کھیت کو پائی لگاں گاہ ہوں۔



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