

FOOD SECURITY AND RESEARCH



PAK-SCNS 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.

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

By the end of October 2021, decreasing values of Satellite based Normalized Difference Vegetation Index (NDVI) manifest maturity / harvesting of Kharif crops and sowing of early Rabi crops. Generally, above normal night 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, Gilgit-Baltistan and Azad Jammu & Kashmir. One rain spell during first week of the month with light to moderate rainfall was observed in parts of Sindh and Balochistan.

Rabi crops sowing operations have been started particularly in barani areas of the country. Wheat sowing is in process in lower Sindh and barani areas. Federal Committee on Agriculture (FCA) in its meeting held on 07th October, 2021 fixed wheat production target of 28.885 Million tons from an area of 9.210 million hectares to meet National food requirement. Support price, favorable weather conditions and timely availability of quality inputs would be vital to achieve this increased

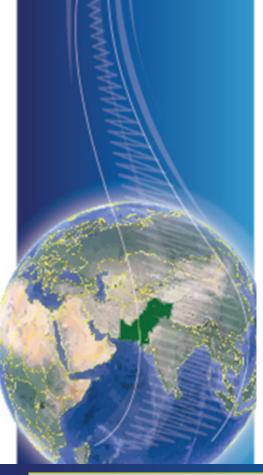
production target. Anticipated short supplies of fertilizers and irrigation water / less rains during Rabi 2021-22 will be major limiting factors to achieve desired results. Relevant departments are making their best possible efforts to enhance country wheat production for ensuring national food security.

Cotton crop was at last picking / terminal stage at the end of October. During current Kharif season, cotton crop showed better crop health than last year. 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 Punjab with an increased infestation as compared to same period of last year.

As per report of Pakistan Cotton Ginning Association (PCGA) on 1st November 2021, cotton arrivals in ginning factories of Pakistan were 6257.019 thousand bales as compared to 3452.382 thousand bales during same period of last year showing an increase of 81.24 percent. In Punjab

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CROPS SITUATION

and Sindh, the cotton arrivals during the reported period were higher by 69.83 and 92.67 percent, respectively, as compared to the same period of last year.

In local market, average ex-gin Cotton price during October 2021 was higher by about 34.09 percent compared to October 2020. Approximate average ex-gin price during October 2021 was Rs. 15634.2 per 40 kg against Rs. 10304.1 during October 2020 showing an increase of Rs. 5330.1 per 40 kg.

Sugarcane crop is also at maturity stage. Provincial governments are making efforts to ensure start of sugar mills operation during November. Sugarcane support price should be announced by provincial governments with a dynamic action plan to ensure provision of notified support price to farming community. Increase in area of sugarcane from last year can cause hue and cry in farming community for provision of notified support price and disposal of sugarcane.

Rice harvesting operations got momentum during October with Basmati harvesting in the month of November particularly in Kalar tract of Punjab. Rice prices in local market are still stable inspite of increase in rice production mainly due to area increase. This price stability may be attributed to rice export potential as compared to other crops in the country.

As per report of Indus River System Authority (IRSA) for October 2021, the irrigation water supply was 7.54 MAF against the last year's supply of 8.23 MAF, decreased by 8.38 percent. As compared to the same period of last year, less irrigation water supplies were observed in Punjab, Sindh and Balochistan provinces. Irrigation water supplies were better in Khyber Pakhtunkhwa than last year.

As per report of National Fertilizer Development Centre (NFDC), total availability of Urea in September 2021 was 604 thousand tons whereas total availability of DAP was 574 thousand tons. During September 2021, off take of Nitrogen increased by 17.6 percent as compared to the same period of last year. Whereas a decrease of 0.7 and 39.3 percent was observed in phosphate and potash off-take respectively, as compared to same period of last year.



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

Rabi 2021-22

Wheat Crop 2021-22

Sowing of Wheat generally started in October in Barani areas and lower Sindh that will gradually progress towards upper parts of country and will continue till end of December. This year government has set a higher wheat production target to meet country wheat requirements. Federal Committee on Agriculture in its 17th Meeting on 07th October, 2021 fixed the wheat production targets in consultation with provinces. Province wise wheat targets are:

FCA Targets 2021-22									
Province	Area (000 ha)	Production (000 Tons)	Yield (kg/ha)						
Punjab	6,560	21,945	3,345.3						
Sindh	1,200	4,200	3,500.0						
Khyber Pakhtunkhwa	900	1,525	1,694.4						
Balochistan	550	1,215	2,209.1						
Total	9,210	28,885	3136.3						
	source: EC								

All stakeholders are making efforts to enhance Wheat production through provision of quality inputs, subsidized inputs rate and mass awareness campaigns.

Anticipated inputs availability for Rabi season 2021-22

Anticipated inputs availability for rabi season 2021-22 is given below

Wheat Support Price

Wheat support price is a key driving factor to increase area of Wheat crop. Last year federal government timely announced wheat support of Rs .1800 per 40 kg that yielded good result to achieve high wheat production. Currently Wheat support is under discussion and will be announced during the month of November to motivate farming community to grow more wheat for national food security.

Weather

According to Pakistan Meteorological Department (PMD), forecast below normal rains are expected in most of major agricultural plains from October- December 2021. Due to deficit rains, Rabi crop may face water stress particularly in rain-fed areas. Above normal minimum temperature is anticipated while maximum temperature may remain below normal particularly over Khayber Pkhtunkhwa and Balochistan.

Anticipated Water Availability

Water availability in reservoirs is not much encouraging as compared to last year. IRSA has estimated a shortfall of 26.6 percent as compared to average system usages. This shortfall is 27.6 and 27.7 percent in Punjab and Sindh respectively. This is a major limiting factor to achieve wheat targets particularly in areas with brackish underground water. During Rabi 2021-22 provinces are allocated 26.91 MAF of water. Anticipated/tentative province wise share is given below:

Anticipated Water Availability Position for Rabi 2021-22								
Province	Average System Usage (MAF)	Estimated Water Availability (MAF)	Excess / Less than Avera System Usage					
Punjab	19.846	14.361	-5.49	27.6				
Sindh	14.968	10.827	-4.14	27.7				
Khyber Pakhtunkhwa	0.701	0.701	0.00	0.0				
Balochistan	1.171	1.022	-0.15	12.7				
Total	36.686	26.911	-9.78	26.6				

Source: IRSA

Seed Situation

According to Federal Seed Certification and Registration Department, during Rabi 2021-22, wheat seed availability is expected to 637.6 (000 tons) sharing 59% of total wheat seed requirement. Good quality seed can only provide good production. Relevant departments are making efforts to provide improved quality seeds to farming community. This year, quality seed provision is increased from 48% to 59% of the total country requirement. Province wise quality seed availability against the requirement in terms of percentage is given below:

Position of Wheat Seed								
Province	Percentage of Total Seed Requirement 2020	Percentage of Total Seed Requirement 2021						
Punjab	42	52						
Sindh	5	4						
Khyber Pakhtunkhwa	1	1						
Balochistan	0	1						
Total	48	59						

Source: FCA on 7th October 2021

This increase in quality seed provision will help for good crop harvest and can tolerate better adverse effects of diseases particularly the leaf rust.

Fertilizer Situation

As per anticipation of NFDC, total urea availability will be 3262 m tons against the total offtake of 3195 m tons. Similarly, DAP availability will be 1031 million tons against the offtake of 1003 million tons. Due to an end-to-end availability and offtake of Urea and DAP, prices can be higher than notified due to hoarding and advance buying by farming community. This high price and unavailability of fertilizers can create restless in farming community that can hinder crop husbandry measures to affect wheat production. A vigilant dynamic action plan is required to ensure fertilizers availability at the notified prices.

Urea consumption is estimated at 3195 (000 tons) against 3225 (000 tons) showing a decrease of 0.9 percent over last rabi 2020-21. DAP offtake is expected to decrease by 9.1 percent over rabi 202-21. About 10 % decrease in DAP offtake is expected due to price escalation.

Estimated Fertilizer Offtake during Rabi 2021-22 (Oct-Mar)									
Province	Urea	DAP	SOP / MOP	Total					
Punjab	2,157	735	36.7	2,928					
Sindh	792	207	10.3	1,009					
Khyber Pakhtunkhwa	147	35	1.8	184					
Balochistan	99	26	1.3	126					
Total	3,195	1,003	50	4,248					
Rabi 2021-22	3,225	1,104	47	4,376					
Percent Change over Rabi 2020-21	-0.9	-9.1	6.4	-2.9					

Source: NFDC

Kharif Crops 2021-22

Cotton Crop 2021-22

Cotton picking is at terminal stage. Better yield and higher prices increased farmers' net margins. This may help to increase cotton yield in coming years to meet textile industry demand to boost textile exports. Favorable weather conditions and better crop husbandry measures resulted in increase of per acre cotton yield from last year.

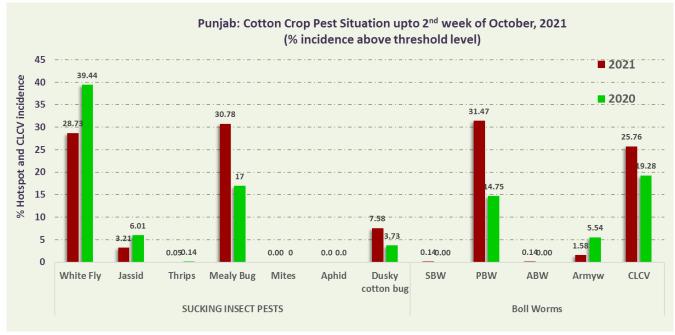
As per report of Pakistan Cotton Ginning Association (PCGA) on 1st November 2021, Cotton arrivals in ginning factories of Pakistan were 6257.019 thousand bales as compared to 3452.382 thousand bales during same period of last year showing an increase of 81.24 percent. In Punjab and Sindh, the cotton arrivals during the reported period were higher by 69.83 and 92.67 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
				C DOCA

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 same period of last year except White Fly. Situation of Punjab province in comparison to last year is given below;



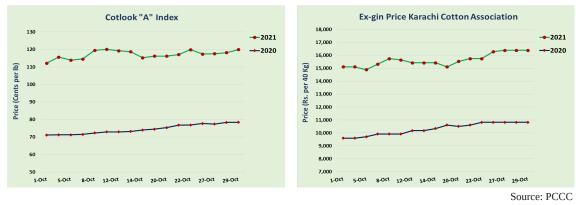
Source: Pest Warning & Quality Controls of Pesticides, Punjab

CROPS SITUATION

Market Prices for Cotton during October 2021

In the international market, average cotton price during October 2021 was 116.84 cents per lb as compared to average price of 73.71 cents per lb during October 2020, showing an increase of 43.12 cents per lb (up by 36.90 percent).

In local market, average ex-gin cotton price during October 2021 was higher by about 34.09 percent compared to October2020. Approximate average ex-gin price during October 2021 was Rs. 15634.2 per 40 kg against Rs. 10304.1 during October 2020 showing an increase of Rs. 5330.1 per 40 kg.



Sugarcane Crop 2021-22

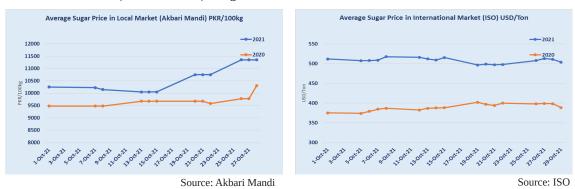
Sugarcane crop is at maturity stage. Sugarcane crop growth was generally satisfactory during this year and insect pest situation was also under control. Sugarcane productivity may increase this year mainly due to increase in net crop area sown.

Provincial governments are making efforts to ensure start of sugar mills operation during November. Sugar crushing seasons will be started during the month of November like the previous year. Farming community is demanding higher sugarcane support price due to increase in cost of production but still notification from relevant department is yet awaited. Increase in sugarcane area can disturb sugarcane support price availability and timely procurement of sugarcane. It is therefore, relevant department should timely notify sugarcane prices and a dynamic action plan for its implementation particularly in the scenario of higher sugarcane area.

Sugar price in the international market (White Sugar Price Index) during October 2021 was approximately 30.32 percent higher compared to October 2020. Average sugar price during October 2021 was 507.78 USD per ton against the average sugar price of 389.62 USD per ton during October 2020, showing average increase of 118.16 USD per ton.

Sugar prices in the local market (Akbari Mandi) also remained higher during October 2021 as compared to October 2020. Average sugar price during OCtober 2021 was around Rs. 10589.58 per 100 kg as against the average sugar price of Rs. 9687.08 per 100 kg showing an increase of around Rs. 902.5 per 100 kg (approx. 9.31 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:



Rice Crop 2021-22

Rice harvesting is in full swing particularly in lower Sindh. Bastmati Rice, however will be harvested during November in Kalar tract of Pakistan. Currently rice is a promising crop for the farming community due to higher rice exports resulting in stable price in local market.

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



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AGRO-MET CONDITIONS

Maximum Temperature: October, 2021

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



Minimum Temperature: October, 2021

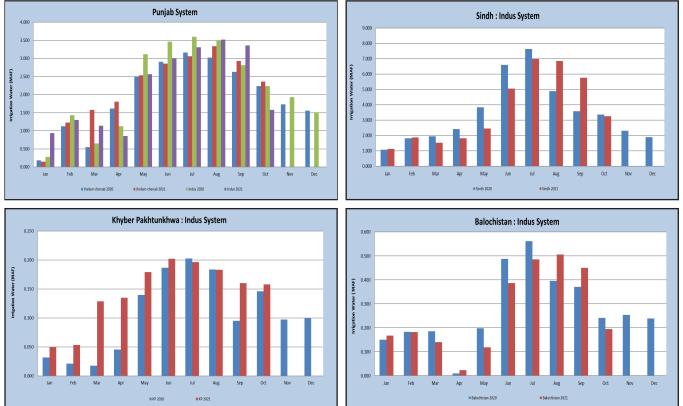
The ranges of minimum temperature (^oC) during October 2021 were as follows:



Irrigation Water Supply: October, 2021

The irrigation water supply during October 2021 was 7.54 MAF against the last year's supply of 8.23 MAF, lower by 0.69 MAF (8.38 percent). During October 2021, as compared to the same time period of last year, the supply in Punjab was 3.93 MAF (lower by 12.03 percent), Sindh was 3.25 MAF (lower by 3.46 percent), Khyber Pakhtunkhwa was 0.16 MAF (higher by 8.01 percent) while Balochistan received water supply of 0.20 MAF (lower by 19.08 percent).

		Year	Pun	jab		Sindh	Khyber Pakhtunkhwa	Balochistan	Total		
	Month		Jhelum-Chenab	Indus	Total	Siliuli	Kliyber Pakiltulikliwa	DaluChistan			
1-22			Million Acre Feet								
202		2021	2.36	1.58	3.93	3.25	0.16	0.20	7.54		
Rabi	October	2020	2.23	2.24	4.47	3.37	0.15	0.24	8.23		
	OCIODEI	Change	0.12	-0.66	-0.54	-0.12	0.01	-0.05	-0.69		
		% change	5.57	-29.60	-12.03	-3.46	8.01	-19.08	-8.38		



Source: Indus River System Authority (IRSA)

Source: Indus River System Authority (IRSA)

Fertilizer Offtake

As per report of NFDC, the month of September 2021 started with opening inventory of 187 thousand tons of Urea. During September 2021, domestic Urea production was 417 thousand tons with total availability of 604 thousand tons. Urea offtake during September remained 487 thousand tons leaving behind closing balance of 117 thousand tons.

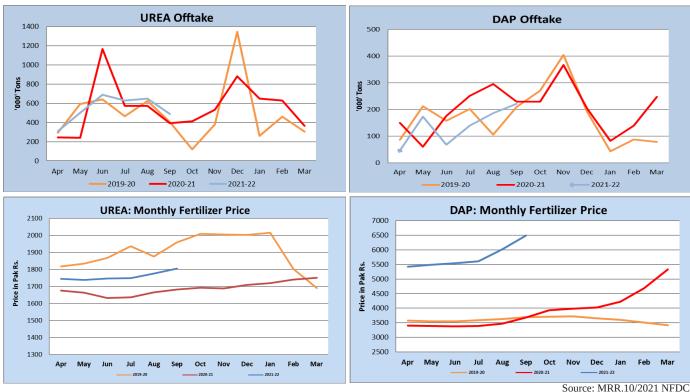
The opening inventory of DAP for September 2021 was 379 thousand tons. During September 2021 domestic production of DAP was 417 thousand tons. The total availability of DAP was 574 thousand tons which also includes 123 thousand tons of imported supplies. DAP offtake during September 2021 was 221 thousand tons leaving behind closing balance of 353 thousand tons.

During September 2021, offtake of Nitrogen increased by 17.6 while that of Phosphate and Potash decreased by 0.7 and 39.3, respectively.

Product	Opening Inventory	Domestic Production	Imports Total Availibility Offtake		Offtake	Write On/Off	Closing Balance				
		000 Tons									
Urea	187	417	0	604	487	0	117				
DAP	379	72	123	574	221	0	353				

	Fertilizer Offtake Kharif 2021-22				Fertilizer Offtake Kharif 2020-21				% Change			
Month	Nitrogen	Phosphate	Potash	Total	Nitrogen	Phosphate	Potash	Total	BT*		D (1	T (1
	(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
Sep	289.4	122.5	7.4	419.3	246.1	123.4	12.2	381.7	17.6	-0.7	-39.3	9.9
Total	1858.4	486.9	34.4	2379.6	1872.1	649.9	32.5	2554.5	-0.7	-25.1	5.7	-6.8
		· · ·		n						Source: M	RR.10/202	1 NFDC

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



زرعی سفار شات مادِنومبر

گندم:-1۔ گندم کی اچھی پیدادار حاصل کرنے کے لیے 15 نومبر تک کاشت موزوں ترین ہے۔ اس کے بعد گندم کی پیدادار میں بتدرینج کمی آنانشر وع ہوجاتی ہے۔ کیاس اور دھان کی فصلیں تقریباً چنائی/ کٹائی کے آخری مرحلے میں ہیں۔اس لیے زمیندار جلد از جلد گندم کی کاشت کو یقینی بنائیں۔ 2-20 نومبر کے بعد کاشتہ فصل میں شرح پنج بڑھادیں کیونکہ اس کے بعد گندم کی فصل میں شگوفے (Fertile Tillers) بنانے کی صلاحیت کم ہو جاتی ہے۔ 3۔ صحت مند بیچ صحت مند فصل کا ضامن ہے۔ اس لیے گریڈ کیا ہواصاف سُتھراصحت مند بیچ استعال کر س۔ 4۔ علاقے کے لیے محکمہ زراعت کی طرف سے خبح پز کردہ منظور شدہ اقسام کاشت کریں۔ فصل کو پہلے زہر ضر ور لگائیں تاکہ فصل بچاریوں سے محفوظ -41 5۔ کم بارش والے علاقوں میں ایک بوری ڈی اے بی، 3/4 بوری یور یااور 1/2 بوری یوٹا شیم سلفیٹ فی ایکڑ ڈالیں۔ جبکہ اوسط بارش والے علاقوں میں دو بوری ڈیاہے پی، سوابوری یور بلادر آ دھی بوری بوٹا شیم سلفیٹ فی ایکرڈالیں۔ 6۔ بروقت کاشت آبیاش علاقوں میں پیدادار حاصل کرنے کا کلیدی عضر ہے۔ اس لیے کیاس، مکنی ادر کماد کی کٹائی۔ 20 دن پہلے یانی لگانابند کر دیں اور کٹائی کے فوراً بعدر دنادیٹر اورد وم بنیہ دوہر اہل چلا کر سہا گیہ دیں۔اور ڈرل سے کاشت کریں۔ 7۔ دھان کی کٹائی کے بعد ایک م تنہ روٹادیٹر دوبارہ چلائیں اور سہا گہ کے بعد ڈرل سے کاشت کر س۔ 8۔ جہاں ممکن ہوجڑی بوٹیوں کے ندارک کے لیے داپ کاطریقہ اینائیں۔ 9۔زمین کی زرخیز ی اور ساخت کو مد نظر رکھتے ہوئے کھاد وں کا استعال انتہائی ضروری ہے۔ تاکہ ان کے ضائع کو کم سے کم کیاجا سکے۔ کمز ورزمین میں دو بوری ڈی اے پی، آدھی بوری بور یا اور ایک بوری پوٹا شیم سلفیٹ جبکہ زرخیز زمین میں ایک بوری ڈی اے پی، آدھی بوری بوری بوری بوری يوٹاشيم سلفيٹ في ايکڑ ڈاليں۔

کپاس:۔

دھان:۔

کماد:۔

1۔ عام طور پر فصل کی کٹائی زمین کے اوپر سے کی جاتی ہے جو کہ مونڈ ھی فصل کے لیے نقصان دہ ہوتی ہے۔ فصل کو زمین سے ایک انچ گر انی سے کا ٹیں۔ اس سے زیر زمین پور یوں میں موجود آنکھوں کو زیادہ صحت مندما حول میسر آتا ہے۔ اور مونڈ ھوں میں موجود گڑوؤں کی سنڈ یوں کو تلف کرنے میں مدد ملتی ہے۔ 2۔ سیلاب، چو ہے کے حملے اور گرنے کے صورت میں متاثرہ فصل کو پہلے کا ٹیں۔ کٹائی سے 30-25 دن پہلے آ بپا شی دینا بند کردیں۔ 3۔ گناکا نئے نے بعد جلداز جلد مل کو سپلائی کریں تاکہ وزن اور ریکوری میں کمی نہ آئے۔ 4۔ مونڈ ھی فصل رکھنا مفصود ہو تو کٹائی 15 جنوری کے بعد کریں۔ جبکہ ایسے گھیت جہاں گند م کا شت کرنی ہود ہاں جلد کٹائی کی جائے تاکہ گند م کی کاشت میں تا خیر نہ ہو۔



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