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.

By the end of March 2022, decreasing values of Satellite based Normalized Difference Vegetation Index (NDVI) depicted maturity / senescence of rabi crops. Generally, above normal day and night temperatures were observed in most parts of the country. Heat wave was observed over agricultural plains during mid of March 2022. 3-4 wide spread rain spells with below normal rains were received in Punjab, Khyber Pakhtunkhwa, Gilgit-Baltistan and Azad Jammu & Kashmir. 2 rain spells with light rains were observed at scattered places in Sindh and Balochistan.

This year, wheat crop scenario was not promising at the start of season due to anticipated inputs availability and forecasted agro meteorological conditions. SUPARCO using its Satellite based Crop Monitoring System, estimated wheat production of 26.129 million tons from an area of 9.387 million hectares with yield of 2784 kg per hectare for rabi season 2021-22. The estimated production is less than the fixed target of 28.885 million tons mainly due to decrease in area and yield.

Wheat yield was affected by urea and short irrigation water supply, increase in rust prevalence and high temperatures in the last fortnight of March (heat wave). Government is planning to procure 6 million tons of wheat @ price of Rs. 2200 per 40kg through PASSCO and provincial food departments. In the light of wheat production during last year, it will be difficult to achieve this procurement target.

Pakistan Cotton Ginners Association Final report of 1st March, 2022, showed arrival of 7.44 million bales in the ginneries up by 32 percent from last year. This production is however, much less than the target and country requirement of cotton bales to meet textile industry demand. Higher cotton prices during March in the international and national markets will mobiliz farmers to grow more cotton. Increase in cotton area is therefore expected in coming kharif season.

Most of sugar mills in the country closed their mill operations by end of March. This year, sugar production in the country was higher than last year to meet country
sugar requirements. This high sugar production resulted in decrease of sugar price in the local market. In local markets, sugar price during March 2022 decreased by 11.92 percent as compared to March 2021 in spite of 18.4 percent increase in sugar price in international market.

As per report of Indus River System Authority (IRSA) for March 2022, the irrigation water supply was 4.54 MAF against the last year’s supply of 4.51 MAF, showing a nominal increase of 0.78 percent. As compared to the same period of last year, the irrigation water supplies were however, decreased in Punjab (lower by 0.90 percent) and Balochistan (lower by 5.11 percent). Sindh and Khyber Pakhtunkhwa have increased irrigation water supplies of 3.22 and 13.85 percent respectively, during March, 2022 as compared to March, 2021.

As per report of National Fertilizer Development Centre (NFDC), total availability of Urea in February, 2022 was 537 thousand tons whereas total availability of DAP was 314 thousand tons. During February 2022, offtake of Nitrogen was increased by 18.1 percent as compared to the same period of last year. Phosphate and Potash offtake, however, was decreased by 29.1 and 30.9 percent respectively, as compared to the same period of last year.
Rabi 2021-22

Wheat Crop 2021-22

MNFS&R, in its meeting of Federal Committee on Agriculture (FCA) held during October, 2021 had fixed wheat production target of 28.885 million tons from an area of 9.210 million hectares to meet wheat requirement of the country. Province-wise wheat targets fixed by FCA were as follows;

<table>
<thead>
<tr>
<th>Province</th>
<th>Area (000 ha)</th>
<th>Production (000 Tons)</th>
<th>Yield (kg/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punjab</td>
<td>6,560</td>
<td>21,945</td>
<td>3,345.3</td>
</tr>
<tr>
<td>Sindh</td>
<td>1,200</td>
<td>4,200</td>
<td>3,500.0</td>
</tr>
<tr>
<td>Khyber Pakhtunkhwa</td>
<td>900</td>
<td>1,525</td>
<td>1,694.4</td>
</tr>
<tr>
<td>Balochistan</td>
<td>550</td>
<td>1,215</td>
<td>2,209.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9,210</strong></td>
<td><strong>28,885</strong></td>
<td><strong>3,136.3</strong></td>
</tr>
</tbody>
</table>

Source: FCA

Using Satellite based Crop Monitoring System, SUPARCO estimated wheat production of 26.129 million tons from an area of 9.387 million hectares for rabi season 2021-22. Province wise SUPARCO estimates for wheat crop are as follows;

<table>
<thead>
<tr>
<th>Province</th>
<th>Area (000 ha)</th>
<th>Production (000 Tons)</th>
<th>Yield (kg/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punjab</td>
<td>6,413.2</td>
<td>19,040.8</td>
<td>2,969.0</td>
</tr>
<tr>
<td>Sindh</td>
<td>1,780.5</td>
<td>4,745.0</td>
<td>2,665.0</td>
</tr>
<tr>
<td>Khyber Pakhtunkhwa</td>
<td>748</td>
<td>1,369.4</td>
<td>1,829.0</td>
</tr>
<tr>
<td>Balochistan</td>
<td>444.8</td>
<td>974.1</td>
<td>2,190.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9,387.2</strong></td>
<td><strong>26,129.3</strong></td>
<td><strong>2,784.0</strong></td>
</tr>
</tbody>
</table>

Key Factors for Wheat Crop 2021-22

Positive Factors

1. Rains and cool weather during January and February played vital role to minimize impacts of fertilizer and irrigation water supplies shortage.
2. High potash offtake and application helped to enhance water preservation, balance of water and drought, improved nutrients offtake from soil particularly of nitrogen and resistance to lodging and disease.

Negative Factors

1. Fertilizers offtake during rabi season (Oct - Feb) in terms of nitrogen and phosphate was less than last rabi season (Oct-Feb) by 2.9 and 7.9 percent respectively.
2. Higher fertilizer prices may affect field application as per crop requirement. Urea price was fifteen percent higher than last year. Similarly during the season, average DAP price was double than the price of last year.
3. Shortage of urea during the season further increased urea availability price to farming community.
4. Water Reservoirs of Tarbela and Mangla had water storage less by 34 and 44 percent respectively as compared to last year as on 28th September (Start of Season) indicating short irrigation supplies during crop growth.
5. Irrigation water supplies during this Rabi season (Oct to March 2022) were lower than last year.
6. Overall, during the season (Oct-Mar) country faced irrigation water supplies of 6.13 percent from last year. Punjab, Sindh and Balochistan had irrigation water supplies shortage of 7.99, 5.11 and 7.02 percent during the season (Oct-Mar) as compared to same period of last year. Khyber Pakhtunkhwa province however, have 15.68 percent higher irrigation water supplies.
7. High temperatures (minimum and maximum) during last fortnight of March affected wheat production due to grain shrinkage.

8. High prevalence of rust particularly during the month of February as compared to last year.
Kharif Crops 2021-22

**Cotton Crop 2021-22**

This year, phutti prices remained very attractive showing an increase of around 40 to 50% from last year. High net profitability may attract farmers’ attention to grow more cotton with better husbandry measures during coming cotton season.

In the international market, average cotton price for March 2022 was 139.85 cents per lb as compared to average cotton price of 92.02 cents per lb for March 2021 showing an increase of 47.84 cents per lb. This shows an increase of 34 percent in cotton price from the last year.

In local markets, average cotton price for March 2022 was Rs. 21434 per 40 Kg as compared to average cotton price of Rs 13007.6 per 40 Kg for March 2021. This showed an average increase of Rs. 8426.4 per 40 Kg (39.3 percent) from last year. Graphs showing Cotlook “A” index price and ex-gin price of Karachi cotton association is given below;

**Sugarcane Crop 2021-22**

Most of sugar mills in the country complete their mill operations by the end of March. This year, sugar production in the country was higher than last year to meet country sugar requirements. No hue and cry relevant to sugarcane procurement and market prices were observed in the farming community.

Sugar price in the international market during March 2022 was approximately 18.4 percent higher compared to March 2021. Average sugar price during March 2022 was USD 527.04 per ton against the average sugar price of USD 444.95 per ton during March 2021, showing average increase of USD 82.09 per ton.

Sugar prices in the local market however decreased during March 2022 as compared to March 2021. Average sugar price during March was around Rs. 8318.42 per 100 kg as against the average sugar price of Rs. 9444.47 per 100 kg showing decrease of around Rs. 1126.05 per 40 kg (approx. 11.92 percent lower).

Graphs showing daily white sugar price index in the International market (International Sugar Organization) and daily aver-age sugar price in the local market (Akbari Mandi) are given below;
AGRO-MET CONDITIONS

Monthly Rainfall (mm): March (2021 & 2022)

Punjab: Cumulative Rainfall (mm) of March 2021 & 2022

Khyber Pakhtunkhwa: Cumulative Rainfall (mm) of March 2021 & 2022

Sindh: Cumulative Rainfall (mm) of March 2021 & 2022

Balochistan: Cumulative Rainfall (mm) of March 2021 & 2022

GB/AJK: Cumulative Rainfall (mm) of March 2021 & 2022

Source: PMD
Maximum Temperature: March, 2022

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

Source: PMD
The ranges of minimum temperature (°C) during March 2022 were as follows:

Source: PMD
Irrigation Water Supply: March, 2022

The irrigation water supply during March 2022 was 4.54 MAF against the last year’s supply of 4.51 MAF, higher by 0.04 MAF (0.78 percent). During March 2022, as compared to the same time period of last year, the supply in Punjab was 2.69 MAF (lower by 0.90 percent), Sindh was 1.57 (higher by 3.22 percent), Khyber Pakhtunkhwa was 0.15 MAF (higher by 13.85 percent) while Balochistan received water supply of 0.13 MAF (lower by 5.11 percent).
Fertilizer Offtake

As per report of NFDC, the month of February 2022 started with opening inventory of 27 thousand tons of Urea. During February 2022, domestic Urea production was 520 thousand tons with total availability of 537 thousand tons. Urea offtake during February remained 527 thousand tons leaving behind closing balance of 69 thousand tons.

The opening inventory of DAP for February 2022 was 228 thousand tons. During February 2022 domestic production of DAP was 70 thousand tons. The total availability of DAP was 314 thousand tons. DAP offtake during February 2022 was 55 thousand tons leaving behind closing balance of 259 thousand tons.

During February 2022, offtake of Nitrogen increased by 18.1 while that of Phosphate and Potash decreased by 29.1 and 30.9 percent, respectively as compared to same period of last year.

### Fertilizer Statistics

<table>
<thead>
<tr>
<th>Product</th>
<th>Opening Inventory</th>
<th>Domestic Production</th>
<th>Imports</th>
<th>Total Availability</th>
<th>Offtake</th>
<th>Write On/Off</th>
<th>Closing Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urea</td>
<td>27</td>
<td>520</td>
<td>50</td>
<td>537</td>
<td>527</td>
<td>-1</td>
<td>69</td>
</tr>
<tr>
<td>DAP</td>
<td>228</td>
<td>70</td>
<td>16</td>
<td>314</td>
<td>55</td>
<td>0</td>
<td>259</td>
</tr>
</tbody>
</table>

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

![Graphs showing fertilizer offtake and prices](image1.jpg)
زریہ ستاراہات (ماہ اپریل)

کپاس:
1. کم کم کنالیں کی کاشت کی جائے۔ کاشت کی کانوں کو نیچے بدل کر قبضہ کیا جائے یا۔
2. کسان نظریہ جلتی لوگ اور آباد کی کاشت کی نہیں ہے۔ اپنے حیات میں کشاﺅں کے خاص مکملہ ہوں۔ کہ یہ دلیل اور مشورہ جمع کرنے کا کام کمک کیا جائے۔
کریکر
3. کریکر کا ماننا کیا جائے کہ کپاس کے کپاس کا کاشت کی جائے۔
4. چمکدہ کا کشاﺅں کی کاشت کو نمی کر کے پھر کپاس کا کبھی نہیں کاشت کیا جائے کہ 100 کلومیٹر کا کاشت کی جائے۔
5. چمکدہ کا کشاﺅں کی کاشت کے ویلی میں ہوئے پھر کپاس کا کبھی نہیں کاشت کیا جائے کہ یہ دلیل اور مشورہ جمع کرنے کا کام کمک کیا جائے۔
6. چمکدہ کا کبھی کپاس کا کاشت کی جائے کہ یہی دلیل اور مشورہ جمع کرنے کا کام کمک کیا جائے۔
7. چمکدہ کپاس کا کبھی کپاس کا کاشت کی جائے کہ یہی دلیل اور مشورہ جمع کرنے کا کام کمک کیا جائے۔
8. چمکدہ کپاس کا کبھی کپاس کا کاشت کی جائے کہ یہی دلیل اور مشورہ جمع کرنے کا کام کمک کیا جائے۔

بھیلی:
9. بھیلی کا کبھی کپاس کا کبھی کپاس کا کاشت کی جائے کہ یہی دلیل اور مشورہ جمع کرنے کا کام کمک کیا جائے۔
10. بھیلی کا کبھی کپاس کا کبھی کپاس کا کاشت کی جائے کہ یہی دلیل اور مشورہ جمع کرنے کا کام کمک کیا جائے۔
11. بھیلی کا کبھی کپاس کا کبھی کپاس کا کاشت کی جائے کہ یہی دلیل اور مشورہ جمع کرنے کا کام کمک کیا جائے۔

کچکر:
12. کچکر کا کبھی کپاس کا کبھی کپاس کا کاشت کی جائے کہ یہی دلیل اور مشورہ جمع کرنے کا کام کمک کیا جائے۔