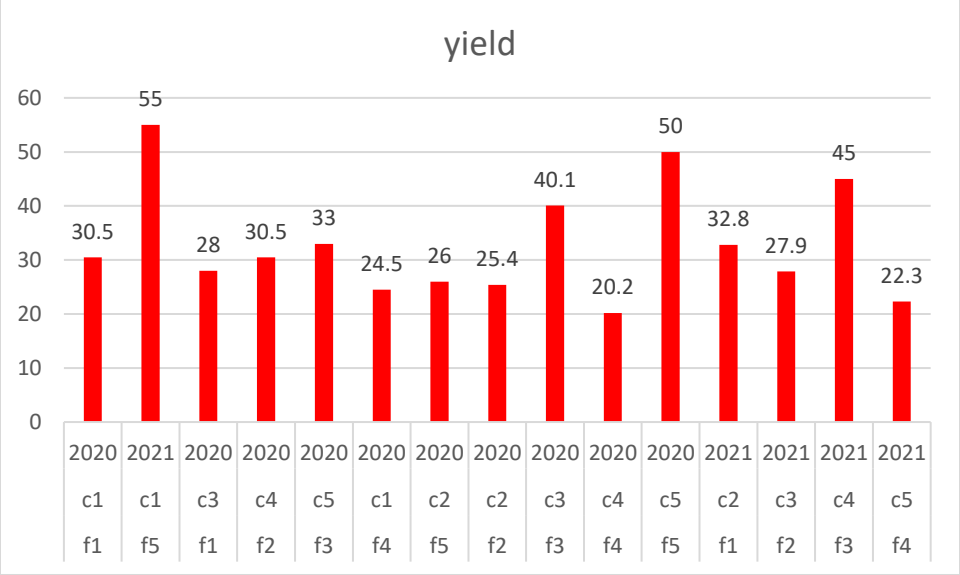
INDIAN FARMER CROP DATA ANALYSIS

```
mysql> use indianfarmer;
Database changed
mysql> -- 1. List all farmers
mysql>
mysql>
mysql> SELECT * FROM farmers;

+-----------+--------+-------------+-----------+
| farmer_id | name   | state       | district  |
+-----------+--------+-------------+-----------+
| f1        | Ramesh | Maharashtra | Pune      |
| f2        | Suresh | Punjab      | Ludhiana  |
| f3        | Anita  | Bihar       | Patna     |
| f4        | Rajesh | Karnataka   | Bangalore |
| f5        | Sunita | Gujarat     | Ahmedabad |
+-----------+--------+-------------+-----------+
5 rows in set (0.00 sec)

mysql>
```

```
mysql> -- 2. List all crops
mysql>
mysql> SELECT * FROM crops;
```

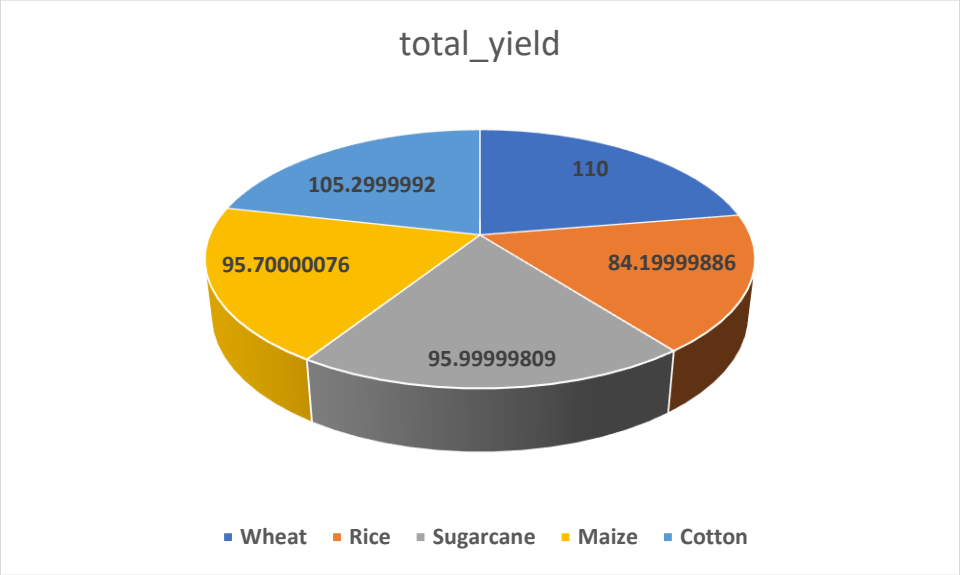
```
+---------+-----------+
| crop_id | crop_name |
+---------+-----------+
| c1      | Wheat     |
| c2      | Rice      |
| c3      | Sugarcane |
| c4      | Maize     |
| c5      | Cotton    |
+---------+-----------+
5 rows in set (0.00 sec)
mysql> -- 3. List all crop data records
mysql> SELECT * FROM crop_data;
+---------+-----------+---------+------+-------+
| data_id | farmer_id | crop_id | year | yield |
+---------+-----------+---------+------+-------+
| d1      | f1        | c1      | 2020 |  30.5 |
| d10     | f5        | c1      | 2021 |    55 |
| d11     | f1        | c3      | 2020 |    28 |
| d12     | f2        | c4      | 2020 |  30.5 |
| d13     | f3        | c5      | 2020 |    33 |
| d14     | f4        | c1      | 2020 |  24.5 |
| d15     | f5        | c2      | 2020 |    26 |
| d2      | f2        | c2      | 2020 |  25.4 |
```

```
| d3      | f3         | c3      | 2020 |  40.1 |
| d4      | f4         | c4      | 2020 |  20.2 |
| d5      | f5         | c5      | 2020 |    50 |
| d6      | f1         | c2      | 2021 |  32.8 |
| d7      | f2         | c3      | 2021 |  27.9 |
| d8      | f3         | c4      | 2021 |    45 |
| d9      | f4         | c5      | 2021 |  22.3 |
+---------+------------+---------+------+-------+
15 rows in set (0.00 sec)
```




```
mysql>
mysql> -- 4. Total yield of each crop
mysql>
mysql> SELECT crops.crop_name, SUM(crop_data.yield) AS total_yield
    -> FROM crop_data
    -> JOIN crops ON crop_data.crop_id = crops.crop_id
    -> GROUP BY crops.crop_name;
+-----------+--------------------+
| crop_name | total_yield        |
+-----------+--------------------+
| Wheat     |                110 |
```

```
| Rice      |  84.19999885559082 |
| Sugarcane |  95.99999809265137 |
| Maize     |  95.70000076293945 |
| Cotton    | 105.29999923706055 |
+-----------+--------------------+
5 rows in set (0.00 sec)
```

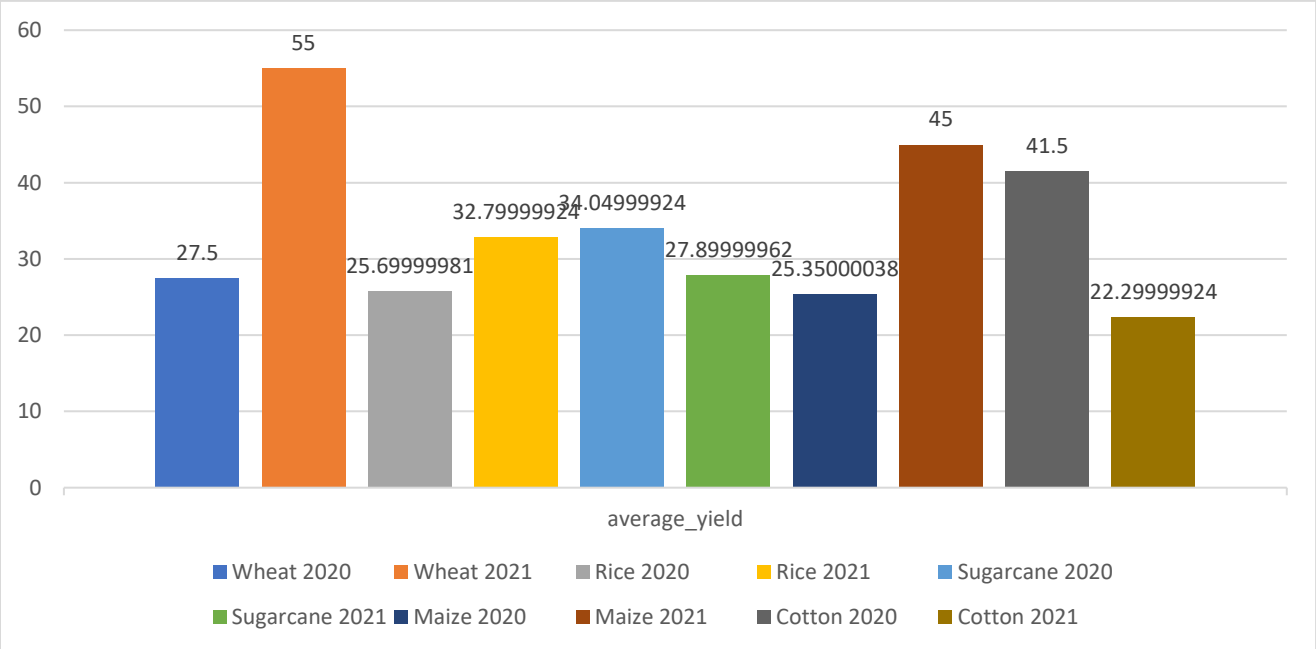



```
mysql> -- 5. Average yield per year for each crop
mysql>
mysql> SELECT crops.crop_name, crop_data.year, AVG(crop_data.yield) AS
average_yield
    -> FROM crop_data
    -> JOIN crops ON crop_data.crop_id = crops.crop_id
    -> GROUP BY crops.crop_name, crop_data.year;
```

```
+-----------+------+--------------------+
```

crop_name	year	average_yield
Wheat	2020	27.5
Wheat	2021	55
Rice	2020	25.699999809265137
Rice	2021	32.79999923706055
Sugarcane	2020	34.04999923706055
Sugarcane	2021	27.899999618530273
Maize	2020	25.350000381469727
Maize	2021	45
Cotton	2020	41.5
Cotton	2021	22.299999237060547

10 rows in set (0.00 sec)



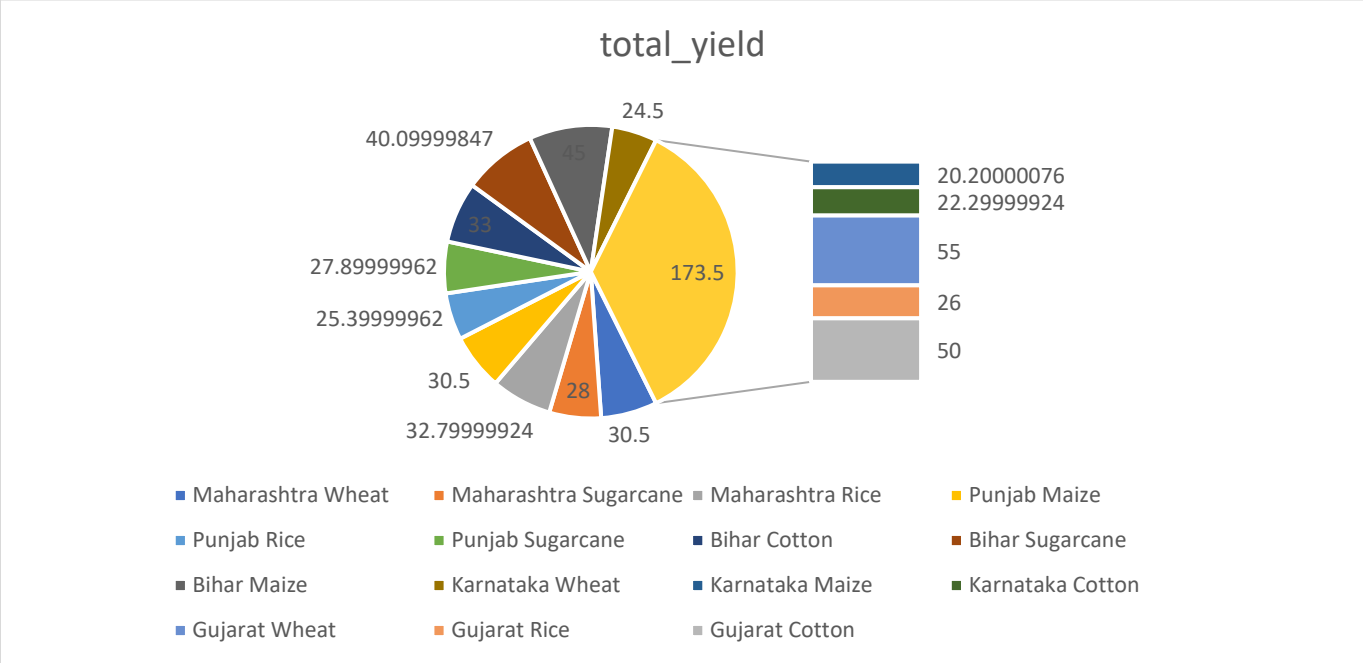
mysql>

mysql> -- 6. Yield of each crop by state

```
mysql>
mysql> SELECT farmers.state, crops.crop_name, SUM(crop_data.yield) AS
total_yield
    -> FROM crop_data
    -> JOIN farmers ON crop_data.farmer_id = farmers.farmer_id
    -> JOIN crops ON crop_data.crop_id = crops.crop_id
    -> GROUP BY farmers.state, crops.crop_name;
```

state	crop_name	total_yield
Maharashtra	Wheat	30.5
Maharashtra	Sugarcane	28
Maharashtra	Rice	32.79999923706055
Punjab	Maize	30.5
Punjab	Rice	25.399999618530273
Punjab	Sugarcane	27.899999618530273
Bihar	Cotton	33
Bihar	Sugarcane	40.099998474121094
Bihar	Maize	45
Karnataka	Wheat	24.5
Karnataka	Maize	20.200000762939453
Karnataka	Cotton	22.299999237060547
Gujarat	Wheat	55
Gujarat	Rice	26
Gujarat	Cotton	50

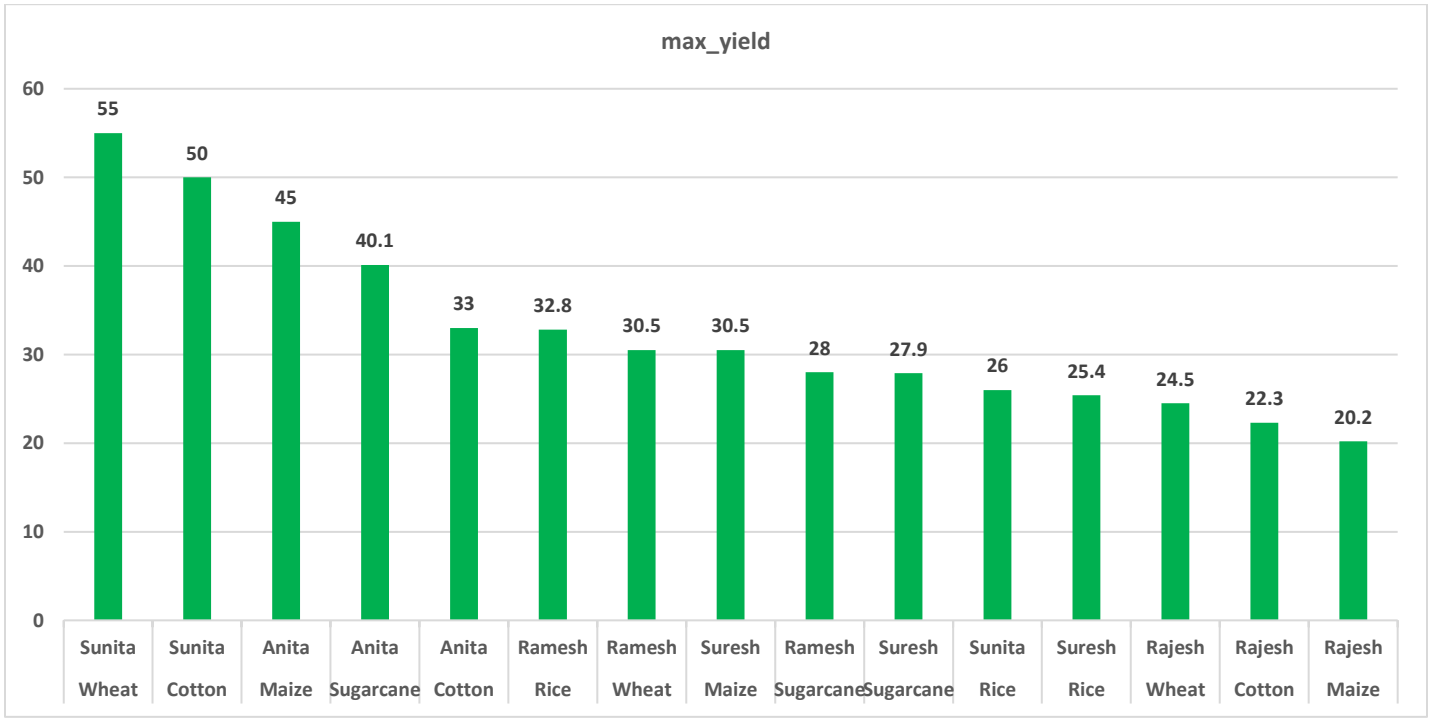
```
+-------------+-----------+--------------------+
15 rows in set (0.00 sec)
```




```
mysql>
mysql> -- 7. Highest yielding farmer for each crop
mysql>
mysql> SELECT crops.crop_name, farmers.name AS farmer_name,
MAX(crop_data.yield) AS max_yield
    -> FROM crop_data
    -> JOIN farmers ON crop_data.farmer_id = farmers.farmer_id
    -> JOIN crops ON crop_data.crop_id = crops.crop_id
    -> GROUP BY crops.crop_name, farmers.name
    -> ORDER BY max_yield DESC;
+-----------+-------------+-----------+
| crop_name | farmer_name | max_yield |
+-----------+-------------+-----------+
```

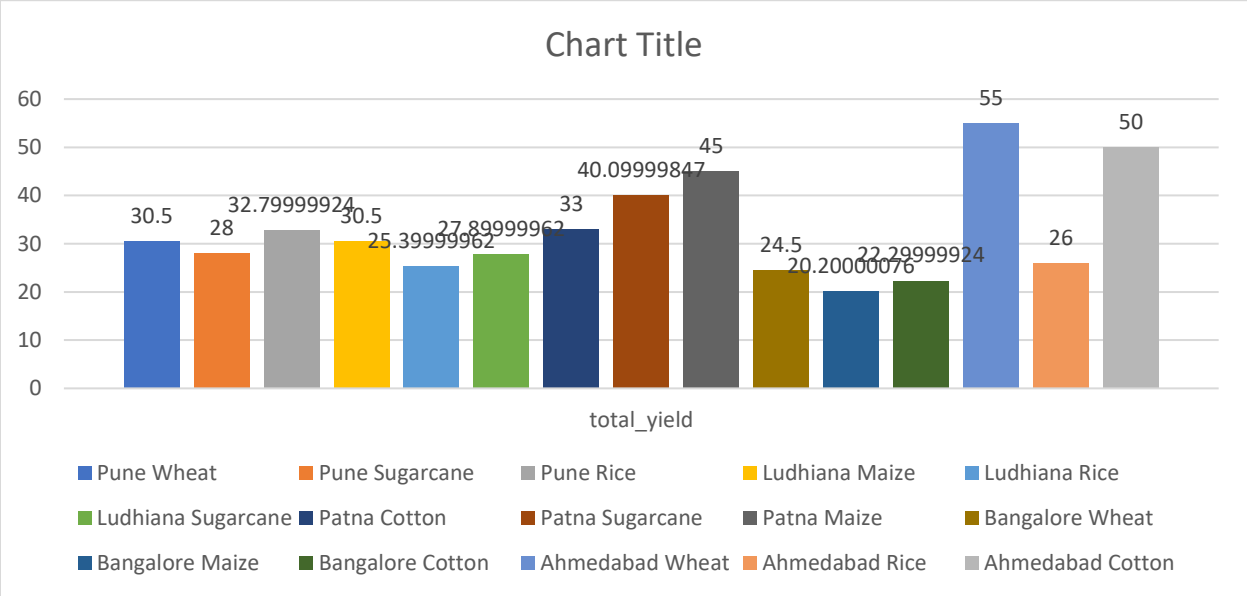
Wheat	Sunita	55
Cotton	Sunita	50
Maize	Anita	45
Sugarcane	Anita	40.1
Cotton	Anita	33
Rice	Ramesh	32.8
Wheat	Ramesh	30.5
Maize	Suresh	30.5
Sugarcane	Ramesh	28
Sugarcane	Suresh	27.9
Rice	Sunita	26
Rice	Suresh	25.4
Wheat	Rajesh	24.5
Cotton	Rajesh	22.3
Maize	Rajesh	20.2

15 rows in set (0.00 sec)



```
mysql>
mysql> -- 8. Yearly yield trends for a specific crop
mysql>
mysql> SELECT crop_data.year, SUM(crop_data.yield) AS total_yield
    -> FROM crop_data
    -> JOIN crops ON crop_data.crop_id = crops.crop_id
    -> WHERE crops.crop_name = 'Wheat'
    -> GROUP BY crop_data.year
    -> ORDER BY crop_data.year;
+------+-------------+
| year | total_yield |
+------+-------------+
| 2020 |          55 |
| 2021 |          55 |
+------+-------------+
2 rows in set (0.00 sec)


mysql>
mysql> -- 9. Comparison of crop yield by district
mysql>
mysql> SELECT farmers.district, crops.crop_name, SUM(crop_data.yield) AS
total_yield
    -> FROM crop_data
    -> JOIN farmers ON crop_data.farmer_id = farmers.farmer_id
    -> JOIN crops ON crop_data.crop_id = crops.crop_id
    -> GROUP BY farmers.district, crops.crop_name;
+-----------+-----------+--------------------+
| district  | crop_name | total_yield        |
+-----------+-----------+--------------------+
| Pune      | Wheat     |               30.5 |
| Pune      | Sugarcane |                 28 |
| Pune      | Rice      |  32.79999923706055 |
```

```
| Ludhiana   | Maize     |                30.5 |
| Ludhiana   | Rice      | 25.399999618530273 |
| Ludhiana   | Sugarcane | 27.899999618530273 |
| Patna      | Cotton    |                 33 |
| Patna      | Sugarcane | 40.099998474121094 |
| Patna      | Maize     |                 45 |
| Bangalore  | Wheat     |               24.5 |
| Bangalore  | Maize     | 20.200000762939453 |
| Bangalore  | Cotton    | 22.299999237060547 |
| Ahmedabad  | Wheat     |                 55 |
| Ahmedabad  | Rice      |                 26 |
| Ahmedabad  | Cotton    |                 50 |
+------------+-----------+--------------------+
15 rows in set (0.00 sec)
```




```
mysql>
mysql> -- 10. Farmers with yield above a certain threshold for a specific crop
mysql>
```

```
mysql> SELECT farmers.name, crops.crop_name, crop_data.yield
    -> FROM crop_data
    -> JOIN farmers ON crop_data.farmer_id = farmers.farmer_id
    -> JOIN crops ON crop_data.crop_id = crops.crop_id
    -> WHERE crops.crop_name = 'Rice' AND crop_data.yield > 30;
+--------+-----------+-------+
| name   | crop_name | yield |
+--------+-----------+-------+
| Ramesh | Rice      |  32.8 |
+--------+-----------+-------+
1 row in set (0.00 sec)


mysql>
mysql> -- 11. Total yield by state and year
mysql>
mysql> SELECT farmers.state, crop_data.year, SUM(crop_data.yield) AS
total_yield
    -> FROM crop_data
    -> JOIN farmers ON crop_data.farmer_id = farmers.farmer_id
    -> GROUP BY farmers.state, crop_data.year;
+-------------+------+--------------------+
| state       | year | total_yield        |
+-------------+------+--------------------+
| Maharashtra | 2020 |               58.5 |
| Maharashtra | 2021 |  32.79999923706055 |
| Punjab      | 2020 |  55.89999961853027 |
| Punjab      | 2021 | 27.899999618530273 |
| Bihar       | 2020 |   73.0999984741211 |
| Bihar       | 2021 |                 45 |
| Karnataka   | 2020 |  44.70000076293945 |
| Karnataka   | 2021 | 22.299999237060547 |
| Gujarat     | 2021 |                 55 |
```

```
| Gujarat     | 2020 |                 76 |
+-------------+------+--------------------+
10 rows in set (0.00 sec)
```