Import libary

In [6]:
```
import matplotlib.pyplot as plt
import cv2
import numpy as np
```

Image Load

In [18]:
```
path = "/media/rifat/STUDY/4-1/LAB/Image_Processing/image/paddy.jpeg"

img = plt.imread(path)
```

RGB image Plot

In [19]:
```
plt.imshow(img)
```

Out[19]:
```
<matplotlib.image.AxesImage at 0x7f1232794be0>
```

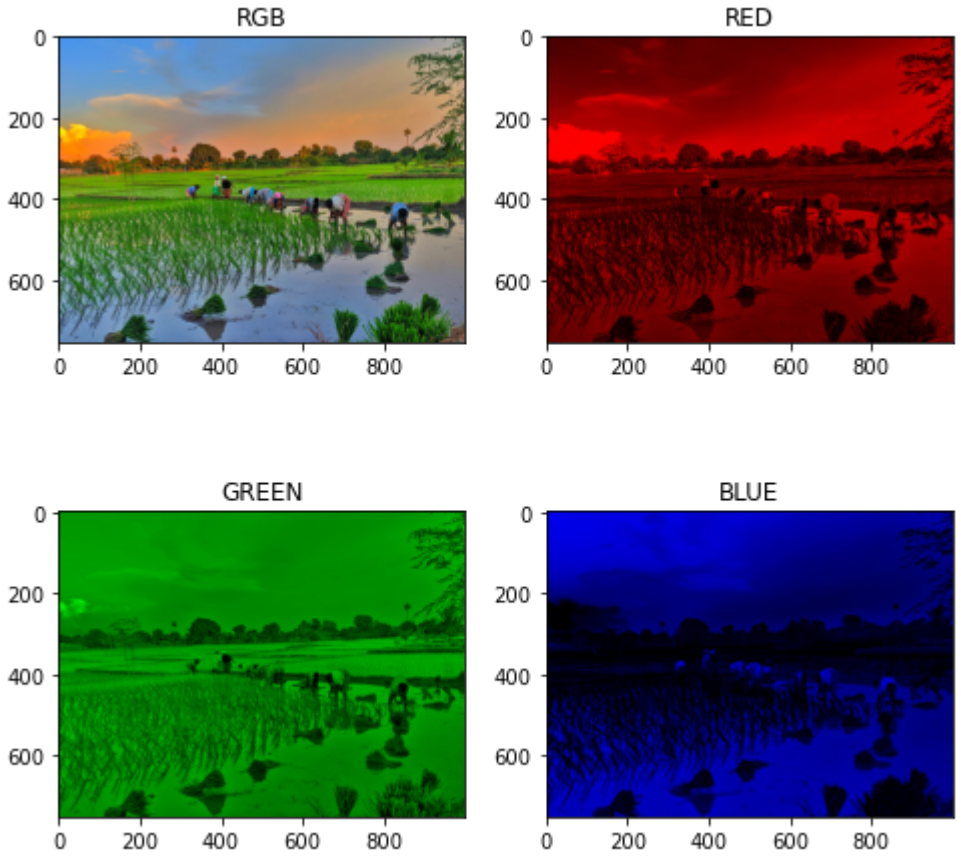
RGB image Shape and Size

In [20]:
```
print("Shape = ",img.shape,"Size = " ,img.size)
```

```
Shape =  (751, 1000, 3) Size =  2253000
```

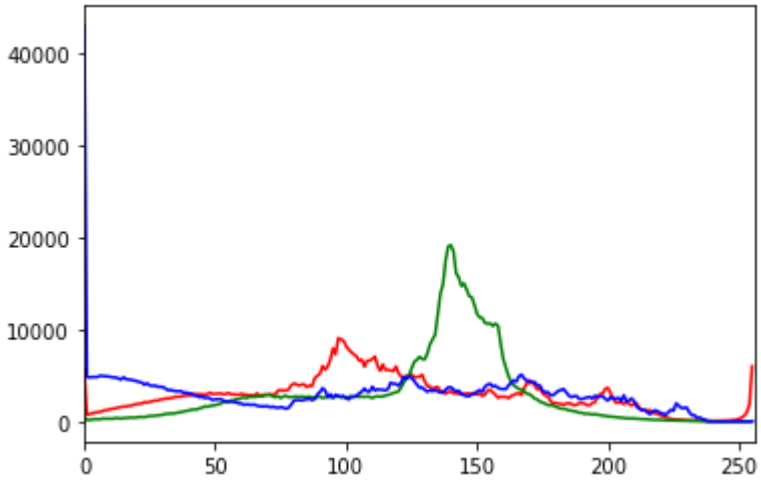
Showing RGB, GREEN,RED,BLUE CHANNEL

In [21]:
```
fig, ax = plt.subplots(figsize=(8, 8))

plt.subplot(2,2,1)
plt.title("RGB")
plt.imshow(img)

plt.subplot(2,2,2)
plt.title("RED")
Img_temp = np.copy(img)
Img_temp[:,:,1] = [0]
Img_temp[:,:,2] = [0]
plt.imshow(Img_temp)

plt.subplot(2,2,3)
plt.title("GREEN")
Img_temp = np.copy(img)
Img_temp[:,:,0] = [0]
Img_temp[:,:,2] = [0]
plt.imshow(Img_temp)

plt.subplot(2,2,4)
plt.title("BLUE")
Img_temp = np.copy(img)
Img_temp[:,:,0] = [0]
Img_temp[:,:,1] = [0]
plt.imshow(Img_temp)

plt.show()
```



All Clanel Histrogram

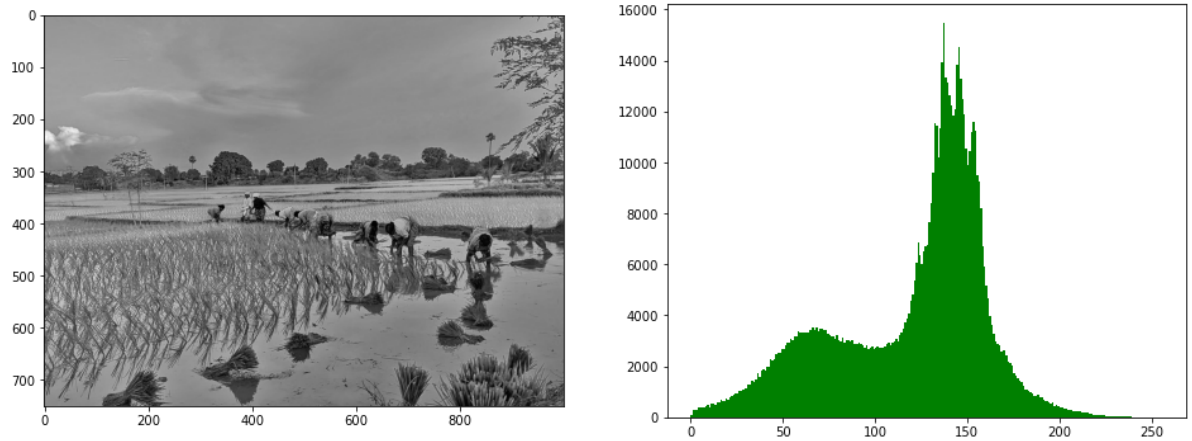
In [22]:
```
color = ('r','g','b')
for i,col in enumerate(color):
    histr = cv2.calcHist([img],[i],None,[256],[0,256])
    plt.plot(histr,color = col)
    plt.xlim([0,256])
plt.show()
```



Matplotlib Gray scale Image and histogram

In [23]:
```
fig, ax = plt.subplots(2, 2, figsize=(25,6))
plt.subplot(1,3,1)
plt.imshow(img[:,:,1], cmap='gray')

plt.subplot(1,3,2)
gray_scal = cv2.cvtColor(img,cv2.COLOR_RGB2GRAY)
gray_scal = gray_scal.ravel()
plt.hist(gray_scal,256,(0,256),color = 'g')

print("Gray Scale Image Size: ",gray_scal.size)
plt.show()
```

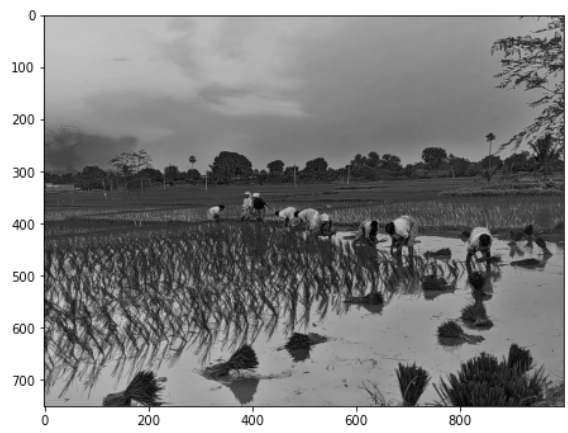
```
Gray Scale Image Size:  751000
```

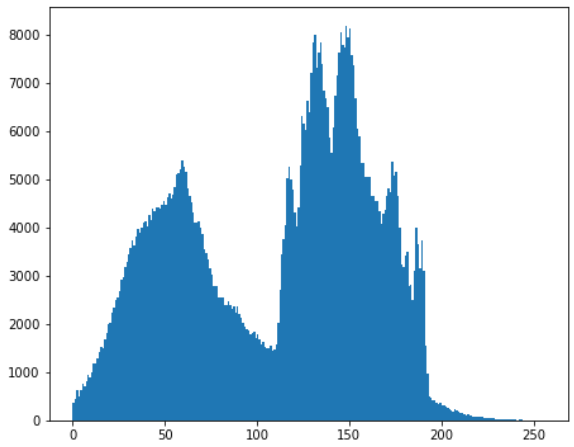


Manual Gray Scale Using Weight

In [24]:
```
fig, ax = plt.subplots(2, 2, figsize=(25,6))
plt.subplot(1,3,1)
R, G, B = img[:,:,0], img[:,:,1], img[:,:,2]
imgGray = 0.2989 * G + 0.5870 * B + 0.1140 * R
plt.imshow(imgGray, cmap='gray')

plt.subplot(1,3,2)
gray_scal = imgGray.ravel()
plt.hist(gray_scal,256,(0,256))
print("Gray Scale Image Size: ",gray_scal.size)
plt.show()
```

```
Gray Scale Image Size:  751000
```



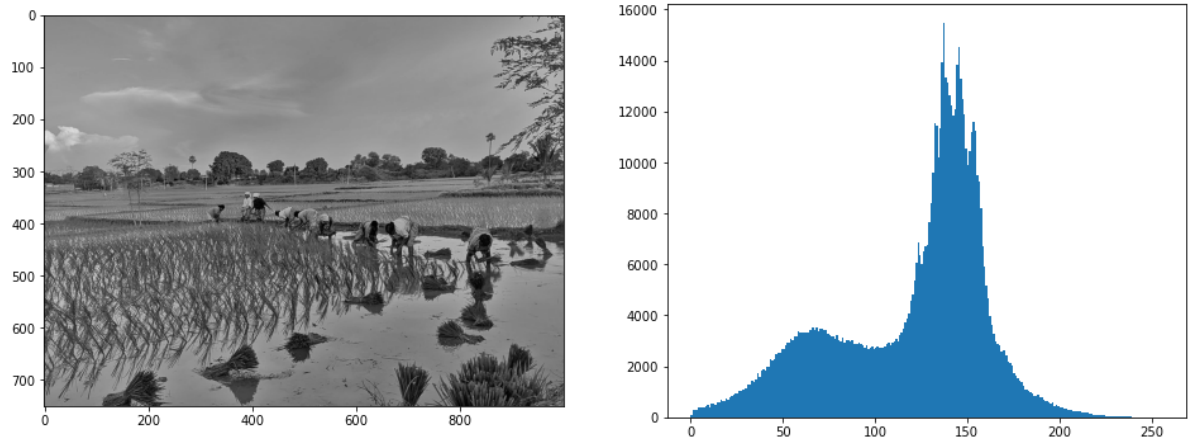


OPENCV Grayscale And Histogram

In [25]:

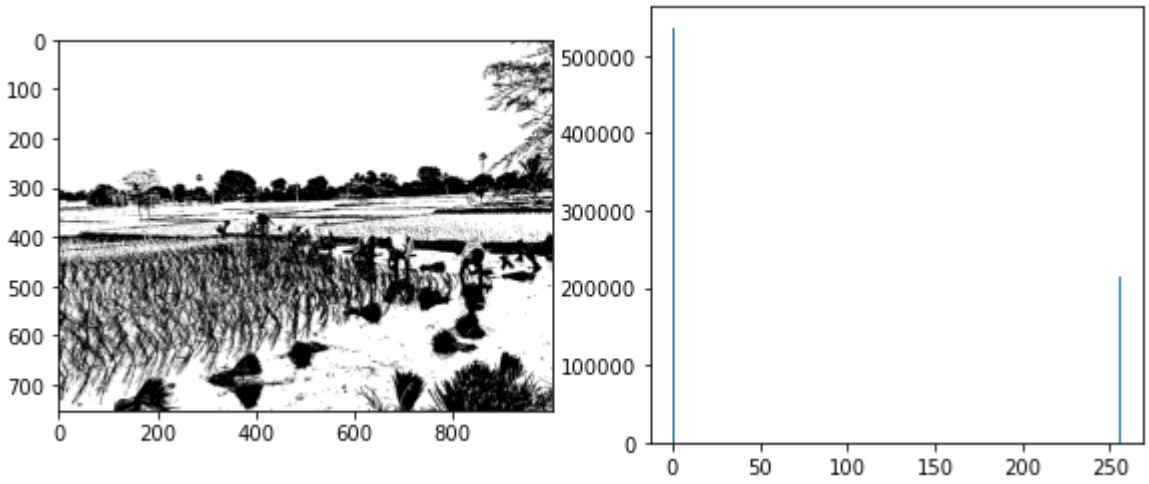
```
fig, ax = plt.subplots(2, 2, figsize=(25,6))
plt.subplot(1,3,1)
gray = cv2.cvtColor(img, cv2.COLOR_RGB2GRAY)
plt.imshow(gray,cmap = "gray")
plt.subplot(1,3,2)
gray_scal = gray.ravel()
plt.hist(gray_scal,256,(0,256))
print("Gray Scale Image Size: ",gray_scal.size)
plt.show()
```

```
Gray Scale Image Size:  751000
```



Binary Image And Histogram OPENCV

In [27]:
```
fig, ax = plt.subplots(2, 2, figsize=(15,4))
plt.subplot(1,3,1)
th, dst = cv2.threshold(gray, 100, 255, cv2.THRESH_BINARY_INV)
plt.imshow(dst,cmap="binary")


plt.subplot(1,3,2)
hiso = dst.ravel()
plt.hist(hiso,256,(0,256))
plt.show()
```



In [ ]:

In [ ]: