

TO CHECK THE BIO-EFFICACY OF RAZE (COC 80%) AGAINST LATE BLIGHT DISEASE OF POTATO

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The **potato** is a starchy tuberous crop from the perennial nightshade *Solanum tuberosum*. The word "potato" may refer either to the plant itself or to the edible tuber. In the Andes, where the species is indigenous, there are some other closely related cultivated potato species. Potatoes were introduced outside the Andes region approximately four centuries ago, and have since become an integral part of much of the world's food supply. It is the world's fourth-largest food crop, following maize, wheat, and rice. The green leaves and green skins of tubers exposed to the light are toxic.

The first thing that one must consider while growing potatoes is that they require a bright and sunny place. They are also the aggressively rooted plants. They need well drained, loose but moisture soil. Adequate amount of light should also enter the place. You may also need an acidic soil of pH nearly 5.5 to 6.8. The good thing about the plant is that they are very much adaptable even if the soil conditions are not perfect. The perfect temperature for the plant is 55 to 65 degree F. even if you had planted at an early temperature, they would not start growing until the soil temperature comes to 45 degree F. the soil must neither be soggy nor wet, rather it must be moist evenly.

The weather plays a big part in the health of a potato crop. Moisture and temperature conditions may trigger certain diseases, which will spread rapidly through the potato rows. But there's no need to simply sit back and let the environment determine the fate of a crop. To protect the crop, potato plot should be rotated each year. Healthy and certified seeds. If there are severe disease problems, standard potato dust or spray should be considered for regular use throughout the season. There are chemical mixtures that prevent some diseases such as late blight. They thwart some pests, too, such as the Colorado potato beetle. To be effective, most standard dusts must be applied to the potato foliage every 7 to 10 days, beginning when the plants emerge from the ground.

The fungus that causes common scab lives in the soil for many years. It's not active, though, when the soil pH is below 5.4, so if you have a serious scab problem, take a soil pH test. You may want to lower the pH by not liming or adding wood ashes to the potato section of the garden.

- **Early Blight**

Early blight injures foliage and reduces overall yields. Affected leaves develop small, dark brown spots that often grow in size, and which eventually kill the leaves. Gardens in central,

southern and eastern states are most susceptible. Planting certified seed and mulching with hay can prevent this disease.

- **Late Blight**

Late blight is caused by the downy mildew fungus -- *Phytophthora infestans*, which triggered the Irish crop failures of 1845 and 1846. You'll notice the disease first by water-soaked areas on the leaves that turn brown and black as the leaf dies. The disease strikes often during cool, wet weather and may spread rapidly if the weather warms up. Plants can die in a severe case, and potatoes can be seriously affected, especially in storage. Plant certified seed and use a potato dust to guard against late blight.

- One of the major disease causing a huge loss to the entire potato industry is the late blight disease. Even in my country, INDIA, late blight has caused a problem of humongous proportions in potato growing areas of the state of West Bengal nowadays and the problem is increasing in geometrical progress each and every year. This disease has been one of the major reasons behind the degradation in the production quantity and quality of potatoes in the state of West Bengal, INDIA. After reading information related to this troubled aroused in my state, I was highly intrigued and thus decided to talk to some higher authorities who could comment on this matter. Finally after digging up some strings from here and there I reached the Hooghly District Agriculture Research Committee and expressed this concern of mine.

Hooghly District Agriculture Research Committee, had given the responsibility to the ADO of Arambagh, Kolkata, West Bengal, India, to co-ordinate the Bio-efficacy test of RAZE(COC 80%) supplied by one of the most reputed chemicals and pesticides company of the country, ISAGRO (ASIA) AGROCHEMICALS Pvt. Ltd., so that it can be used as a sustainable solution for the farming community of West Bengal against the late blight disease of potato.

Therefore ISAGRO (ASIA) AGROCHEMICALS Pvt. Ltd organised a team guided by the R&D department of the company in to order to check the bio-efficacy of the compound RAZE (COC 80%) against the late blight disease of potato. The team consisted of:-

Dr. N.N MONDOL (SAO Arambagh)

Dr. P. LASHKAR (ADO Arambagh Farm)

Mr. ANUBHAV TEWARI (Co-ordinator i.e. myself)

Our entire team under my leadership guidance worked day and night in the field of Goghat to evaluate the efficacy of RAZE against the late blight disease of potato.

➤ REPORT

Details of the experiment:

Location:	Goghat
Design:	R. B. D
Clone:	Khufri Jyoti
Shade Status:	Moderate
Plants per Replication:	100 Bushes
Total Replication:	Three
Spraying Technique:	Two weekly rounds followed by Two monthly rounds
Disease Species:	Late Blight

(*Phytophthora infestans*)

➤ OBSERVATION

The per cent reduction in disease intensity was worked out by scoring every treated bush in a 0-4 scale of disease severity method during the time of spraying as well in the time of final post treatment observation. The results for two trials have been presented in the following tables on the next pages:-

<u>Treatment</u>	<u>Mean</u>	<u>%Reduction over Control</u>
Raze 25g/10L	2.3	73.6
Raze 12.5g/10L	3.7	58.6
Index 7.5g/10L	3.7	58.6
Index 10g/10L	3.3	62.1
Index 5g/10L	6.0	31.0
Companion 25g/10L	2.6	70.1

Companion 12.5g/10l	5.0	42.5
Taktavar10g/10L	4.3	50.5
Taktavar 15g/10L	3.0	65.5
Taktavar 20g/10L	3.0	70.1
COC 436 15ml/10L	3.0	65.5
COC 436 25ml/10L	2.3	73.6
Tagero 6.25g/10L	4.6	47.1
Tagero 12.5g/10L	4.0	54.0
Active 80 + COC 5ml + 25g/10L	2.0	77.0
Apsa 80 + COC 5ml + 25g/10L	2.0	77.0
Dhanuvit + COC 6ml + 25g/10L	2.0	77.0
COC 25g/10L	2.0	77.0
Magic Shakti + COC 1ml/10L + COC 25g	1.6	73.6
Magic Shakti + COC 2ml/10L + COC 25g/10L	2.0	77.0
Control	8.7	
CD at P=0.051.652		
CV %		29.50

*TABLE 1

<u>Treatment</u>	<u>Mean</u>	<u>% Reduction over Control</u>
Raze 25g/10L	2.3	77.0
Raze 12.5g/10L	3.7	63

Index 7.5g/10L	3.7	63
Index 10g/10L	3.3	67
Index 5g/10L	6.0	40
Companion 25g/10L	3.0	70
Companion 12.5g/10l	5.0	50
Taktavar 15g/10L	3.0	70
Taktavar 20g/10L	2.7	73
COC 436 15ml/10L	3.3	67
COC 436 25ml/10L	2.3	77
Active 80 + COC 5ml + 25g/10L	2.0	80
Apsa 80 + COC 5ml + 25g/10L	2.0	80
Dhanuvit + COC 6ml + 25g/10L	2.0	80
Magic Shakti + COC 2ml/10L + 25g/10L	2.0	80
COC @ 1:400	2.3	77
Nutrastick + COC 1.5ml + 25g/10L	2.0	80
Nutrastick + Hexaconazole 2.5ml + 20g/10L	2.0	80
Control	10.0	-
CD at P=0.05		1.276
CV%		23.26

*TABLE 2

➤ RESULTS

The findings stated in Table-1 and Table-2 indicate that there has been 73.6 and 58.6 % reduction in the late blight disease of potato at 25 & 12.5 gm. /10L on application of Raze (COC 80%)

➤ FINAL STATEMENT

From the research conducted above by me and my team we have reached to a final conclusion that is in complete agreement with all the team members who participated in this research and the expert team from the R & D Department of ISAGRO ASIA AGROCHEMICALS Pvt. Ltd. who have played an immense role in this project by supporting and funding us as per our need and providing us with crucial data very important for concluding this work. I would also like to thank the West Bengal Government and Hooghly District Agriculture Research Committee for their simply immense co-operation without which completing this research would have been a herculean task. Our team has finally come to the conclusion that Raze (COC 80 %) is highly effective in reducing the Late Blight Disease of potato.