DEVELOPMENT OF CHEMICAL FERTILIZER POLICY IN NEPAL: A POLICY REVIEW

ACKNOWLEDGEMENT

It is my great pleasure to acknowledge the contribution made by various persons and institutions in the preparation of this thesis.

Daayitwa Nepal is highly acknowledged for providing excellent platform for exploring and achieving technical practical knowledge. I would also like to acknowledge Nepal youth Academy Team for providing me leadership skills and self development activities during my entire study period. Specially thankful to Pukar malla dai for your care, , advice and suggestion during my study period. I would like to acknowledge the support and help from Sristi and Mellisa for technical as well as tactical guidance.

I would like to express my deepest gratitude and sincere thanks to my supervisor Dr. Maniratna Aryal, Ministry of agriculture and livestock development for his valuable guidance, persistence encouragement ,constructive criticism and keen interest through the study period. I admire his free exchange of ideas, deep insight of the research problem and thoughtful instructions, which enriched my experience and made this study worthwhile.

I would like to express my profound gratitude to senior scientist Dhruba Bahadur Thapa (Ph.D.) for providing me guidance and supports.

Similarly, I extended my heartfelt thanks to Assistant Professor Rishi ram kattel, Agriculture and Forestry University, Department of agricultural economics and agribusiness management for his guidance, support, advice and thoughtful instructions.

All the administrative,financial units and Minu of Daayitwa who have directly and indirectly assisted me for the successful completion of this study are highly acknowledge.

I would like to acknowledge the support and help from my senior di Anupama Sharma for information about this fellowship program.

Special thanks to my best friend Susmita Subedi for her suggestion, creative comments and support during my entire study period.

Also, I am very much thankful to other fellows Shyam, Kaushal, Pratik, Prajol, NIschal, Neha, Alina, Kripa, Vedika, Ankita and Shusma.

I would like to express my sincere thanks to all my respondents who helped me by providing information.

I am indebted to my mother Dharma Devi B.C. and father Krishna Bahadur B.C. my lovely moms Pasupati Gautam and GeetaGautam, beloved brothers Kamal Dev G.C., Laxman B.C., Shiva Gautam, Roshan Gautam, JeevanThapa, YubrajThapa, Amoson oli, subash thapa, Sandeep Thapa, Samridda shahi.

Thanks are due to all the concerned people directly or indirectly who have been involved enthusiastically to prepare in the final shape.

Suraj B.C.

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ACRONYMS /ABBREVIATIONS

A.D	After Death
ADS	Agriculture Development Strategy
AIC	Agriculture Input Corporation
AICC	Agriculture Information communication center
AICL	Agriculture input company limited
AIMS	Agriculture Input Management Section
APP	Agriculture Prospective Plan
AS	Ammonium Sulphate
CBS	Central Bureau of Statistics
CDO	Chief District Dfficer
DADO	District Agriculture Development Office
DAP	Diammonium Sulphate
et al.	etalli
GDP	Gross Domestic Product
GoN	Government of Nepal
MOAC	Ministry of Agriculture and Co-Operatives
MOAD	Ministry of Agriculture Development
MOF	Ministry of Finance
MOP	Murate of Potash
MT/Mt	Metric Ton
NARC	Nepal Agriculture Research Station
NIB	Nepal Investment Board
OM	Organic Matter
PMAMP	Prime Minister Agriculture Modernization Project
STCL	Salt Trading Company Limited
SWOT	Strength Weakness Opportunity and Threat
UNFAO	United Nation Food and Agriculture Organization

ABSTRACT

A study was conducted to review chemical fertilizer policy development of Nepal during the year 2018. This study was based on the secondary information available at ministry of agriculture development and livestock management, AICL and STCL. This study was focused on the timeline wise policy development, past and present policy with their strength, weakness, opportunities along with threats and total demand and supply scenarios of chemical fertilizer availability in the country at different time phases. This study found that Fertilizer policy was changed over time to time but all the policies failed to fulfill total chemical fertilizer demand in country. AICL and STCL has monopoly in chemical fertilizer trading and no private institutions involvement in chemical fertilizer trading at last phase of timeline. Government of Nepal lack supervision on fertilizer recommendation and Available fertilizer is used in blanket application fashion. problems of soil health identification, farmers identification and sustainable nutrient scheme has not been addressed well. commercialization on farming techniques, increase in education level along with agriculture development projects of government provides good opportunities. Government should focus on district wise soil heath portfolio preparation Program and district wise chemical fertilizer recommendation should best way of agriculture development in Nepal.

Key Word : Chemical Fertilizer, Blanket, Portfolio, Commercialization

INTRODUCTION

Nepalese economy is based on agriculture due to which it is also perceived as the backbone of Nepalese economy, the two-third of the total population engaged in this sector i.e. 65.6 percent contribute to only about one-third of the GDP i.e. 27.6 percent with economic growth rate of (MOF, 2017). This figure tells a lot about the agricultural productivity of Nepal and makes one wonder if agriculture should really be held as the national means of livelihood.

Agriculture as a main occupation, it provides a food, income and employments to the majority of the population in country. However, it promotes the poverty for further future because majority of the people are engaged in small economic works and they have fear of losing current income by accepting risky work on commercialization (Raut & Sitaula, 2015). This situation have major challenge for agriculture development in Nepal, which is transfer people from subsistence farming to competitive commercial farming. For the commercialization of agriculture sector agriculture input plays an important role in production process. Availability of good quality input helps in increment of production. Among various inputs fertilizer is the major input because of all essential element supplement. Fertilizer is a vital input for agriculture production .and It not only plays direct role in increasing production but also enhances efficiency of other inputs like irrigation and seeds.

Nepalese farmer's are economically unable to purchase costly fertilizer. They are small and marginalized in character with average land holding of 0.6 hector and majority of them are tenants. Government of Nepal with keen objective of reduction of poverty by increasing income level of farmer's through increasing crop productivity along with improvement of soil fertility. For this objective fulfillment fertilizer is complete solution. The major fertilizer demanding area lies on the terai followed by hills and high hills. The major crop for fertilizer consumption in Nepal is rice followed by maize and wheat, where rice consume 65 percent of the total consumption in Nepal (Shrestha, 2010).

Fertilizer is consider as major tool in various programs of government. Agriculture prospective plan(APP) picked up prioritized inputs like irrigation, fertilizer, road and power and technology. where APP has target of 131 kg nutrient per hectare in 2015 A.D. from base year 31 kg nutrient per hectare in 1994/95 A.D. . At the end of APP only 102 kg nutrient per hectare is achieved.

where fertilizer used per cropped area in terai, hills and mountain is found to be 152,101 and 38 kg nutrient per hectare respectively (APP, 2015) Recently developed 20 year agriculture development strategy(ADS) has target of 4 percent organic material(OM) in soil from base year of 1 percent OM in 2010 A.D (ADS, 2015). Prime minister agriculture modernization project(PMAMP) conduct soil testing campaign in different super zone, zone ,block and pockets throughout the country. UNFAO run various program related to soil health and sustainable management. Nepal Agriculture Research Council(NARC) is the sole organization in country, which is responsible for research in soil related activities.

Nepal has open border system with India. Many informal activities like informal trade, smuggling and corruption has occurred in border areas. Fertilizer is deficit in Nepal since long before. This deficit condition favors these informal activities. Fertilizers imported by the government cover only one-fourth of the country's total requirement and the rest is met by informal imports, or smuggling through porous border with India. A study conducted by the Finance Ministry in 20010 has put the share of informal fertilizer imports at 71.6 percent (Diwash, 2016).

Birjung, Biratnagar, and Bhairahawa are the major borders for fertilizer trading in Nepal. Price of fertilizer in these market are basis for Nepal government to fixed selling price of fertilizer throughout the country based on actual cost. Government of Nepal fixed price of major three chemical fertilizers urea, Diammonium phosphate and murate of potash. Based on actual cost basis, farmers should pay fixed price which is fixed by GoN and if the cost goes beyond fixed price then government of Nepal will pay for it as subsidy (MOAD, 2017).

We are facing challenges to cope with the increasing population and soaring demand for food. As we cannot increase the farming area, we must increase productivity. We can avert a food crisis and subsequent social unrest by enhancing the supply of chemical fertilizers. So, the role of chemical fertilizers is key to improving food security by boosting productivity. We have been importing chemical fertilizers to meet demand in the absence of a chemical fertilizer plant within the country. We can save a huge amount of money if we are able to produce chemical fertilizers from a production plant in Nepal. There are benefits as well as challenges involved in setting up a plant in Nepal. We are facing long hours of load-shedding in Nepal with a huge deficit of power. Establishing a chemical fertilizer plant means we have to arrange a dedicated line of at least 200–300 MW of electricity with round-the-clock power. Given the power supply capacity

at present, it is impossible at the moment to run such a power-consuming plant. Urea is produced using raw materials from the atmosphere. So, we need not spend money on importing raw materials for urea production. However, if we want to produce Diammonium phosphate (DAP) and potash we have no option but to import raw materials. Even, India imports 80–90% of the raw materials for DAP and potash. Importing raw materials for DAP and potash would put our cost of production higher than that in India. There is no logic in producing DAP and potash in Nepal if the cost is higher than what is being produced in India. So, at the moment, it is cheaper to import DAP and potash rather than producing these fertilizers ourselves (NIB, 2016)

Statement of problem

Fertilizer is a vital input in agricultural production process. Similarly, Fertilizer policy is also a vital policy among all the agriculture related policies. However, the policy is changed over time to time. Policy changed over time but Nepal has been facing problem of deficit in timely supply of good quality fertilizer as per the farmer's demand since long before. Current fiscal year the total farmer's demand of fertilizer is nearly eight lakh metric ton but only twenty five percent of farmer's get fertilizer in subsidized price (MOAD, 2017).

Rational of study

This study will help quick review of all fertilizer related policies of Nepal. It will also provide the general developmental idea about policies of past and present and also provide guidelines for policy making for future. SWOT analysis and recommendations will help government of Nepal for policy preparations. This study would also helpful to researcher for further studies.

Objectives

- To review fertilizer policy scheme of all time.
- To conduct SWOT analysis of fertilizer policies of past and present in Nepal.
- To analyze current scenario of demand and supply of chemical fertilizer in Nepal.

METHODOLOGY

The study is based on the secondary information available in the ministry of agriculture, land management and co-operatives and the institutions. The other institution includes agriculture input company limited (AICL) and salt trading company limited. The required information was collected from published policy document, progress reports, publication of ministry, AICL & STCL. Further more information about current statistics and upcoming strategies can be collected from personal interview of experienced working personal of ministries and other institution. Review of articles, journals and publications related to fertilizer policy development of Nepal was done by table work at both ministry and daayitwa office.

HISTORICAL DEVELOPMENT OF CHEMICAL FERTILIZER

Fertilizer imports of Nepal starts with the importation of ammonium sulphate from India in 1953 A.D. by private traders. Then after National trading limited started trading of chemical fertilizer as public institution with responsibility of fulfillment of fertilizer demand of country but systematic import and distribution of the chemical fertilizer only started after establishment of Agriculture input corporation (AIC) in 1966 A.D. After certain period of time AIC is unable to supply fertilizer in subsidized price due to price increment in international market with failure of Government to allocate sufficient budget caused reduction in import and distribution of fertilizer. Then after the deregulation policy came which promotes Private sector working with AIC together for fertilizer importation and distribution in the country. Experience of differences in price of same fertilizer as well as price discrimination across the country as major problems due to involvement of different private traders. After 2007 A.D. till date, To eliminate these problems government develop new operational modality of fertilizer importation and distribution in country through office of Agriculture input company limited , salt trading company limited and cooperatives.

The agricultural Inputs Management Section (AIMS) under ministry is mandated to formulate policy guidelines for administration and implement the activities regarding inputs management but policies related to fertilizer are changed over period of time and couldn't combat the farmer's problem.

Fertilizer sector development in Nepal is divided into Four phases (Shrestha, 2010).

- Phase I-before 1973
- Phase II- subsidy regime from 1974 to 1996/97
- phase III - deregulation of fertilizer trade from 1997/98 to 2007/08
- 2008/9 till date

General characteristics of different phases of development.

Phase I (before 1973 A.D.)

- Started in 1953 A.D., Trading of Ammonium sulphate(AS) from India by private traders
- Establishment of National trading limited as public institution on trading, trade of AS from Russia
- Systematic effort of trading and distribution started after Estd. Of Agriculture input company(AIC) under ministry of agriculture in 1966. first public sector enterprise
- AIC firstly import from India later from international market
- After AIC Est., Demand of the fertilizer is increased, price is on the basis of actual cost
- Differences in selling price of fertilizer with in the country is due to transportation cost.
- Pricing system is changed later and make price uniform across the country.

Phase II (From 1974 to 1997)

- Increased in price of fertilizer in international market,
- government introduce price and transportation subsidy with two purpose
  - Encourage farmers to use fertilizer in relatively low price
  - Discourage out flow of fertilizer from Nepal to India by keeping 15-20 % more in selling price
- Due to higher price in International market government bear huge financial burden
- This financial encumbrance of government produces fertilizer as a political commodity, non of the government wants to involve in the problem
- AIC bear loss of about 850 million rupee and government unable to allocate sufficient budget for subsidy provision
- Deregulation policy came into action

Phase III (from 1997 to 2007)

- Deregulation package involve
  - Removal of Monopoly of AIC in fertilizer trade and distribution by allowing private sector with equal treatment of both the parties

- ➢ Time bound phase of fertilizer subsidy
- ➢ Decontrolling fertilizer price
- Removal of subsidy in DAP and MOP in 1997 and removal of all subsidy in 1999
- Formulation of fertilizer control order 1997 based on essential commodity act 1996
- Formulation of National fertilizer policy 2002 based on FCO

Phase IV (2008 till date)

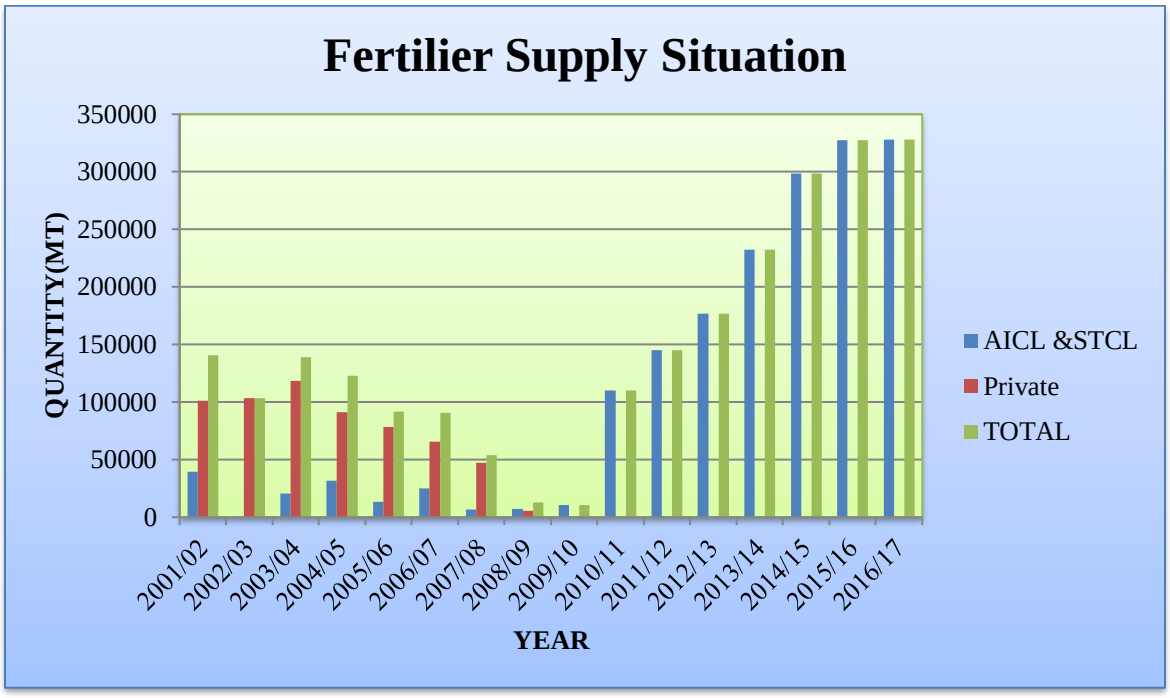
- Deregulation policy failed to bring desirable impact on improving supply situation and quality control due to
- ➢ Rise of price in international market
- ➢ Small farmers could not afford high price
- ➢ Inflow of low quality fertilizer
- Introduction of new subsidy scheme on price
- New operational modality lunched by council of ministers through MOAC

Features of current subsidy scheme

- Provision of maintaining selling prices of fertilizer at 20-25% higher than that of India at five import points (Biratnagar, Birgunj, Bhairahawa, Nepalgunj and Dhangadhi).
- Agriculture Inputs Company Limited (AICL) and Salt Trading Corporation Limited (STCL)are responsible to import and distribute the chemical fertilizer.
- The difference amount between actual cost and subsidized price will be provided as subsidy to AICL and STCL (subsidy administration is on cost sharing basis).
- Provision of subsidy distribution management committee chaired by secretary of MoAD. The committee is responsible for price fixation, fund release and overall monitoring and evaluation of the subsidy program.
- Subsidized fertilizer will be available for 0.75 hectare in hilly districts and 4 hectares in terai districts to the technical requirement of three crops per year.
- Subsidized fertilizer is distributed through offices of AICL, STCL and cooperatives.
- Chief District Officer (CDO) of the respective district chairs the Fertilizer Supply and Distribution Management Committee which is responsible for overall management of fertilizer distribution at district level.

DEMAND AND SUPPLY TREND OF CHEMICAL FERTILIZER IN NEPAL

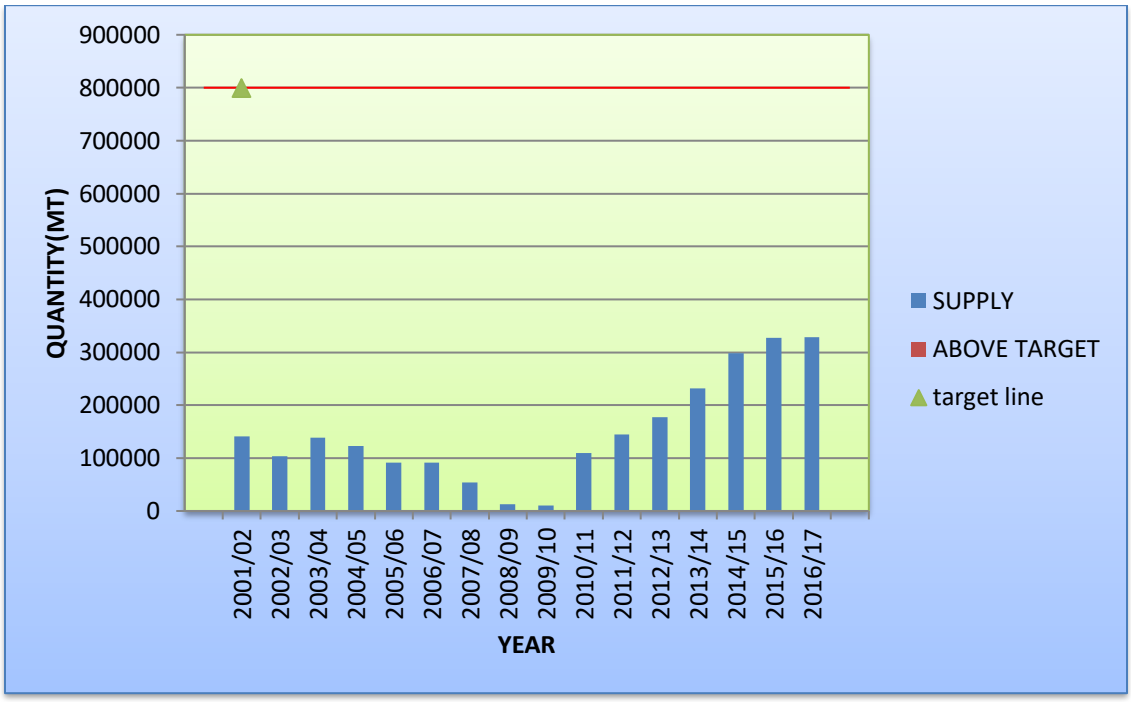
a) Fertilizer supply situation



source : (AIMS-MOAD, 2017)

This graph shows that total supply of fertilizer in country has major contribution by private sector from 2001/02 to 2007/08 followed by AICL and STCL. But after 2009/10 no privet sector were involved in fertilizer trading and AICL and STCL had monopoly then after. The amount imported from 2001/02 is gradually decreased up to 2009/10 then after amount was increased gradually and reached to maximum in 2016/17 with 328216 metric ton (AICL, 2017).

b) demand and supply scenario of chemical fertilizer in Nepal



source : (AIMS-MOAD, 2017)

This graph shows that Nepal has fertilizer demand at constant rate of eight lakh metric ton per year. This demand left the total supply of chemical fertilizer in country far below. Due to which Nepal faced huge deficit in chemical fertilizer from year ago. In last five years the availability increases gradually but in nominal amount as required. In 2016/17 the total supply of chemical fertilizer is 328216 metric ton which is more less than total demand. This may be the one of the major factor on low productivity of crop in country.

SWOT ANALYSIS OF CURRENT FERTILIZER POLICY

Strength

- Provision of separate section (Agriculture Inputs Management Section) in MoAD for the specific task of fertilizer and seed subsidy.
- Already defined policy framework and guidelines for program implementation.
- The program to support subsidy in Nepal is under First Priority Program (P1) thereby assuring the regular budget allocation.
- Involvement of Agriculture Inputs Company Limited (AICL) and Salt Trading Corporation Limited (STCL) in import and distribution of fertilizers

Weakness

- Lack of awareness on farmers for timely check up soil health.
- Insufficient number of soil testing laboratories along with insufficient number of human resource.
- Lack of monitoring institutions as required and Poor monitoring on fertilizer inspection and regulation of program.
- Complicated procurement procedure under public procurement act leading difficulty in timely supply of fertilizer and seed on season.
- Demand collection of fertilizer is focused on the major cereal crop and not included other commercial crops in account.
- Total demand of the fertilizer has not been able to fulfill and government allocates nominal budget on it.
- Integrated plant nutrient management(IPNS) all the nutrient are essential in plant growth and development with differ in function in plant physiology but current policy focused on Urea, DAP and Potash.
- Current Fertilizer subsidy scheme has not been able to cover the farmers of remote areas due to undulated geography and transport facility.
- Program targets small and marginal farmers only.
- Lack of participation of private institution.
- Current policy fixed higher land holding for subsidized fertilizer availability as compare to current average land holding of Nepalese farmer i.e. 0.6 ha,

- Current distribution has chance of biasness.
- distributor faces problem of weight loss

Opportunity

- Increasing commercialization is demanding more of improved inputs like chemical fertilizer and improved seeds.
- Government is conducting a rigorous feasibility study to establish chemical fertilizer plant within the country.
- Ministry is providing trainings to produce and capacitate more number of fertilizer and seed inspectors for regulatory works.
- Existing network of DADOs and Service center at bottom level to effectively implement the program.
- Involvement of cooperatives for distribution at farmer level makes the distribution mechanism more transparent.

Threat

- Total fertilizer availability on the country is depends on the import from another country so it creates dependency.
- Price of the fertilizer on the country is based on the international price so chance of fluctuation price in any time.
- Distortion of fertilizer market due to subsidy scheme leading to dismal participation of private sector in the business.
- Increasing use of chemical fertilizers may result to decline in soil health in long term.
- Open border system with India threats that chance of competition between subsidized fertilizer of country with cheap, adulterated and low quality Indian fertilizer and chance of illegal supply of subsidized fertilizer in Indian market.

CONCLUSION

This study reviewed policies related to chemical fertilizer in Nepal. It is found that Nepalese farmer's faced major problem of unavailability of chemical fertilizer from a long time ago. If available, it is untimed, inadequate and adulterated in nature. Absence of fertilizer industry in Nepal, total chemical fertilizer available is solely from import that's why price of chemical fertilizer is directly relate to international price. As a result this dependency creates major threat for Nepal. Monopoly of AICL and STCL in fertilizer trading of the country and private institutions were not engaged. Trend analysis showed that chemical fertilizer in the country is left the total supply in the country. Government focused on various programs recently but growth rate was quite slow. This speed will take more than 50 years to equalize the current demand.

RECOMMENDATION

1. Government of Nepal open tender for limited number of private sector with quality and quantity guidelines. Then these private sector helps on work of AICL and STCL as a result availability of fertilizer throughout the country. The government of Nepal acts as the regulatory body and conduct periodic monitoring and evaluations on guidelines.
2. Government recommend fertilizer in generalized blanket form that means recommendation of fertilizer for rice is same for all district without determining nutrient status. Nutrient recommendation varies with place. If we make district wise nutrient portfolio, it might be a guideline for different recommendation for different places and helpful to balanced use of fertilizer accordingly.
3. .The program of distribution of Farmer Identification Card (Kisan Parichaya Patra) should be tied with the subsidy program. The card will identify small, medium and large farmers. Ministry should look to provide subsidy to all the farmers but in different rates.

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