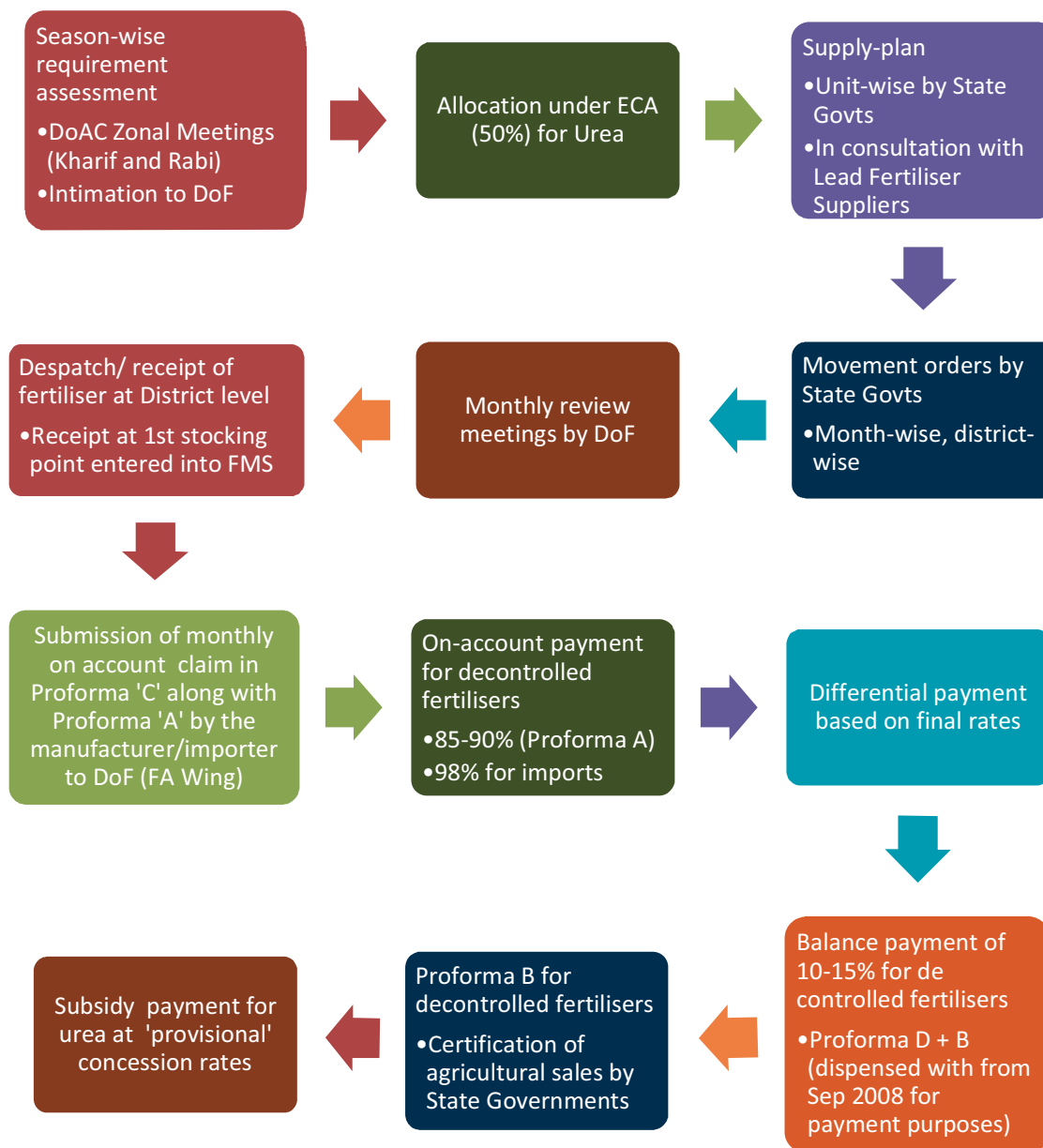


4 - Assessment of Requirement of Fertilizers

Figure 4.1 - Process from Assessment of Requirement to Payment of subsidies



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4.1 Procedure for Assessment of Fertilizers Requirement

The requirement of major fertilizers, namely urea, DAP, MOP and complex fertilizers, is assessed 3-4 months before each cropping season *namely* Kharif (1 April to 30 September) and Rabi season (1 October to 31 March) to ensure adequate availability of fertilizers to farmers.

For this purpose, Department of Agriculture and Cooperation (DoAC) calls for certain information from the States, including:

- consumption of fertilizers;
- off take of fertilizers by the State level fertilizer suppliers of various categories;
- area under coverage and irrigation;
- product wise opening stock;
- requirement;
- Sales points and district-wise consumption of fertilizers, retail points;
- consumption of micro nutrients;
- quality control and fertilizer samples;
- soil testing;
- progress report of soil testing etc.

Assessment of requirement is made through **“Agricultural Inputs Zonal Conferences”** organised by the Department of Agriculture and Co-operation (DoAC), Ministry of Agriculture with participation from the representatives of the Department of Fertilizers, Directorates of Agriculture of the State Governments, ICAR¹¹, the Fertilizer Association of India, Lead Fertilizer Suppliers, and other fertilizer industry representatives. At these conferences, the State Governments/UTs present their projected requirements for major fertilizers.

After detailed discussions and taking into account the previous season’s consumption, the State-wise and month-wise assessment of requirement of major fertilizers is finalized by the DoAC and communicated to the DoF. Thereafter, the Essential Commodities Act (ECA) supply plans and movement orders are issued under the Fertilizer Movement Control Order for indigenous and imported urea by the Department of Fertilizer. Similarly, “agreed” supply plans¹² are also prepared and issued for decontrolled fertilizers.

¹¹Indian Council for Agricultural Research

¹²Agreed by the fertilizer manufacturers/importers with the State Governments.

4.2 Deficiencies in Assessment of Fertilizer Requirement

We found that no minutes of the deliberations of the seasonal Zonal Conferences were maintained by the DoAC. In the absence of such minutes, the basis and detailed justification for the State-wise and month-wise requirement of major fertilizers could not be ascertained. This is further confirmed by the State-specific audit findings, which revealed that requirements of fertilizers were generally projected by an increase of 5 to 10 per cent over the previous season's/year's consumption, and indicated that no scientific method was followed for assessing the requirement of fertilizers.

A summary of State-wise findings is given below: details are given in the State specific chapters.

Table 4.1 – State-wise deficiencies in assessment of Fertilizer requirement

SINo.	Name of State	Summary of findings
1.	Andhra Pradesh	<ul style="list-style-type: none"> • Soil testing is necessary in order to ascertain the availability of primary and secondary nutrients in the soil so as to provide specific recommendations for the requirement of different fertilizers. However, out of the 120.44 lakh of land holding, the Department of Agriculture was conducting soil tests for approximately 4.60 lakh (4% only) land holdings per year only. At this rate, it would take about 26 years to get all the land holdings tested. • The assessment of requirement of fertilizers was not based on recommendations of Panchayat Samithis, but was done simply by adding 10 to 15 per cent to the highest consumption during the preceding five years. No procedures for assessment of fertilizer requirement were prescribed by the Commissioner and Director of Agriculture to be followed by the district/mandal level agriculture officers. • In Guntur district, during 2008-09 (Kharif and Rabi seasons), due to shift in crop pattern of major crops like maize, cotton and chillies, there was a sudden increase in fertilizer demand, which was not taken into consideration by the Department of Agriculture.
2.	Assam	<ul style="list-style-type: none"> • The requirement projected was based on previous year's consumption. • No norms/standards had been used for calculating the requirement of fertilizers based on the type of crop, irrigated/non-irrigated area, soil health and other local factors.
3.	Bihar	<ul style="list-style-type: none"> • No norms were laid down for calculating the requirement of fertilizer based on type of crop, irrigated/ non-irrigated area, soil health and other local factors. • The requirement of various types of fertilizers was projected at the Directorate level considering only the previous years' consumption data (without input from District and lower levels) and not based on

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SINo.	Name of State	Summary of findings
		<p>the irrigated/non irrigated area, soil health and other local factors. This requirement was generally based on adding 10 to 20 per cent to highest consumption year on the average of 3 years consumption.</p> <ul style="list-style-type: none"> • Even the previous year's consumption data was not realistic, as break up of consumption data at the district level was not available. • The assessed requirement of fertilizer was not properly broken down block-wise. The supply at district level was broken down block wise not on the basis of cultivable land, but on the basis of number of Panchayats in the block without any documentation. • Consumption was based on the basis of supplies made by the fertilizer company.
4.	Chhattisgarh	<ul style="list-style-type: none"> • No norms/standards or guidelines were laid down for calculating requirement of fertilizers. The assessment of requirement was done on the basis of actual consumption of fertilizers in the last few years, increased by a certain percentage.
5.	Gujarat	<ul style="list-style-type: none"> • No norms/standard were laid down for assessing the requirement of fertilizer based on the type of crops, irrigated/non-irrigated area, soil health and other local factors. • Fertilizer requirement for the district were not sent by the Dy. Director of Agriculture of the concerned district for the Zonal Agriculture Input Conference. These were prepared at the State level, without such inputs from lower levels. • Further, no meetings with the farmers/ co-operatives and other stakeholders at district level were held for assessment of the fertilizers. Also, the Panchayat Samitis/Block Samitis were not involved in the assessment of fertilizer requirement.
6.	Haryana	<ul style="list-style-type: none"> • Requirement was calculated season-wise (Kharif/Rabi) based on the previous year's consumption. Panchayat Samitis/Block Samitis, etc. were not involved in assessment of the fertilizer requirement. Assessment was for the whole district, and not based on geographical factors and soil composition, which would vary across blocks.
7.	Himachal Pradesh	<ul style="list-style-type: none"> • The assessment of requirement of fertilizers for the State was being done by the Department on the basis of the previous year's sales reported by HIMFED and IFFCO. The requirements so assessed were being presented at the Zonal Input Conference on fertilizers. • The State Agriculture Department stated (in March 2010) in the exit conference that it was difficult to assess the actual requirements, keeping in view of the climate conditions of the State.
8.	Jharkhand	<ul style="list-style-type: none"> • During 2006-09, the assessment of fertilizer requirement was prepared in consultation with the lead fertilizer supplier i.e IFFCO and other manufacturers. There was no correlation between the dosages prescribed by Birsa Agricultural University (BAU)/Directorate of

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SlNo.	Name of State	Summary of findings
		Agriculture (DoA) and that projected by the DoA in the Zonal Agriculture Input Conference; the gap between the two ranged from 31 to 92 per cent during 2006-09. The District and Block Agricultural Officers and farmers were not involved in the assessment process.
9.	Jammu & Kashmir	<ul style="list-style-type: none"> • The fertilizer requirement in Kashmir Division was being assessed on the basis of fertilizer dosages recommended by the Sher-e-Kashmir University of Agriculture, Sciences and Technology Kashmir (SKUAST), for cultivation of agricultural/horticulture crop, on area basis. In Jammu Division, the assessment was being done on the basis of cropped area and the previous year's off-take. • No orders/instructions had been issued to district/block level Agricultural Offices for assessment of fertilizer requirements. For assessment at the district/block level, there was nothing on record to indicate that meetings were held with the farmers and there was involvement of Panchayat Samiti/ Block Samiti in the assessment. • Based on the dosages of fertilizer recommended by SKUAST for paddy and maize on area basis, the requirement for these two crops alone worked out to 41360 MT of Urea, 29920 MT of DAP and 8840 MT of MOP, against which the total requirements of the Kashmir Division had been shown to Government of Jammu and Kashmir as 40200 to 40650 MT of Urea, 15675 to 17500 MT of DAP and 4000 to 5565 MT of MOP during the three kharif seasons.
10.	Karnataka	<ul style="list-style-type: none"> • The prescribed criteria for calculating the requirement were previous year's district wise consumption, best season consumption, seasonal conditions, crop coverage and diversification and discussions with lead fertilizer unit as well as other manufacturers during monthly meetings. However, in the test checked districts, the requirement was projected on the basis of previous year's consumption data with an increase of 10 per cent.
11.	Kerala	<ul style="list-style-type: none"> • The assessment of requirement was not based on type of crop, increase/decrease in crop area, cropping pattern, area under irrigation etc. Instead, it was calculated by adding five per cent to the highest consumption during the last five years up to 2007-08. During 2008-09, the requirement was calculated by taking 10 per cent increase over the consumption during previous seasons, except for DAP for which an increase of 25 per cent was taken. • Consumption was calculated on the basis of receipt of fertilizer by whole sellers/retailers during the season. The total of the subsidy claims/sales reports submitted by the manufacturers was taken as the consumption for the season.
12.	Madhya Pradesh	<ul style="list-style-type: none"> • No circulars/ guidelines for assessing the requirement of fertilizers were issued by the Director of Agriculture, to the district offices. No norms/standards were laid down for calculating the requirement of fertilizers based on the type of crop, irrigated/non- irrigated area, soil

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SINo.	Name of State	Summary of findings
		<p>health and other local factors, discussions/meetings with Panchayat Samiti, Block Samiti, suggestions of farmers, no. of major, medium, small and marginal farmers etc. In many cases, demands were not even sent from the district level, and even when the districts sent the demands, the figures were changed at the Directorate level.</p> <ul style="list-style-type: none"> In response to audit enquiry, the Deputy Directors of Agriculture (DDsA) of the test checked districts stated that demands were decided on the basis of previous year's consumption.
13.	Maharashtra	<ul style="list-style-type: none"> As per instruction issued by the Commissionerate of Agriculture (CoA), the district wise demand of fertilizers in Kharif and Rabi seasons was to be assessed based on maximum consumption of fertilizers during the last three years, cropping pattern and irrigation facility in the district. However, it was seen in audit that the Agricultural Officers had collected the sale data of previous years from the dealers concerned and furnished them to the ADOs who in turn sent the information to the Deputy Director of Fertilizer (DDF), Pune, instead of assessing the requirement as per the instructions issued by the CoA.
14.	Manipur	<ul style="list-style-type: none"> The requirement of fertilizers was projected on the basis of previous years' consumption.
15.	Meghalaya	<ul style="list-style-type: none"> No specific norms/standards had been laid down for assessment of the requirement of fertilizers based on the type of crop, irrigated/non-irrigated area, soil health and other local factors. The requirement of various types of fertilizers was projected on the basis of previous year's consumption data received from MECOFED and other wholesale dealers in the State.
16.	Nagaland	<ul style="list-style-type: none"> The assessment of requirement was made on the basis of the sales data collected from dealers in the State.
17.	Orissa	<ul style="list-style-type: none"> Though the assessment of fertilizer requirements at the district level was finalised after a strategy committee meeting held by the District Collector in the presence of representatives of different fertilizer manufacturers and the District Agricultural Officers (but without any involvement of the farmers), the Directorate of Agriculture, who consolidated the assessments, projected the State's requirement by adding 5 to 10 per cent of quantity to the previous years' consumption. Soil-testing reports aimed at use of balanced doses of fertilizer as per the soil health condition were not considered while preparing the assessment of fertilizer requirements.
18.	Punjab	<ul style="list-style-type: none"> The assessment of requirement of fertilizers was not being received from all the Chief Agriculture Officers (CAOs) regularly in the office of the Director of Agriculture. Instead, the Director of Agriculture used the data of previous year's consumption with minor adjustments for calculating the requirement of fertilizers for the subsequent year.

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SlNo.	Name of State	Summary of findings
		<ul style="list-style-type: none"> • Soil tests were being carried out regularly, but the analytical reports of these tests were not considered while assessing the fertilizer requirement. • Panchayat Samiti/Block Samiti, farmers' co-operatives and other stakeholders at district level were not involved in the assessment of the fertilizer requirement.
19.	Rajasthan	<ul style="list-style-type: none"> • Requirement was being assessed at the Directorate level, keeping in view the consumption of fertilizers in the previous five years and total area sown in the State assuming normal rain fall. However, the assessed requirement was not based on assessments at the district/block level, casting doubts on its robustness.
20.	Tamil Nadu	<ul style="list-style-type: none"> • Joint Directors of Agriculture (JDA) finalised the requirement of the fertilizers in each district based on cropped area and recommendation made by the Tamil Nadu Agriculture University, Coimbatore in consultation with the Assistant Director of Agriculture (ADA) of the block concerned. However, no documentation was available in the JDA office or at Block ADA's office. At the state level, the requirement was calculated by adding a certain percentage to the highest consumption (supply made to First Stock Point) in the best Rabi/Kharif season in a district, which was then projected at the Zonal Conference. • No discussions were held with Block Samitis or farmers for finalizing the district level requirement.
21.	Tripura	<ul style="list-style-type: none"> • Assessment of requirement of fertilizer was done while preparing the Perspective Plan at every Agriculture Sub Division based on the standard recommended dose, and 3 years average consumption for the period ending 1996-97. However, the plan was revised in 2004-05 as the target so fixed was quite high. For example the projected requirement of fertilizer for the year 2004-05 was reduced from 111156 MT (575 kg per hectare) to 46000 MT (130 kg per hectare) in the revised perspective plan. • No norms/standards had been laid down for calculating the requirement of fertilizers based on the type of irrigated/non-irrigated area, soil health and other local factors. • The assessment of requirement, thus, <i>prima facie</i> appeared to be a theoretical exercise and not based on actual field assessment.
22.	Uttar Pradesh	<ul style="list-style-type: none"> • The assessment of requirement of fertilizer at the district level was not done in the test checked districts except in Gorakhpur for 2008-09, that too, only on the basis of cropped area, without holding meetings with farmers, co-operatives etc. and without taking into account the factors such as cropping patterns etc. • Instead, the assessment of fertilizer requirement for the state was

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SINo.	Name of State	Summary of findings
23.	Uttarakhand	<p>projected by the Agriculture Department by increasing the previous year's consumption of fertilizer.</p> <ul style="list-style-type: none"> The assessment of requirement of fertilizers in the State, at all levels, was based on consumption of last year/ season instead of type of crop, irrigated/ non-irrigated area and other local factors. Thus, the assessment could not be termed as scientifically determined. Panchayat Samiti and Block Samiti were not involved in the assessment of fertilizer requirement. No data regarding per hectare consumption of fertilizer was available in the State, apart from the consolidated report in the Zonal Conference booklet.
24.	West Bengal	<ul style="list-style-type: none"> The State Government had fixed norms of consumption of fertilizers per hectare, based on types of crops to be cultivated. However, the same norm was fixed for all blocks in a district, irrespective of soil health and irrigation facility. Although block wise requirement of fertilizers for each season was assessed on the basis of type of crops grown, this was not projected at the State level. The requirement of fertilizers for each season was assessed on the basis of previous years' consumption in consultation with Lead Fertilizer Supplier and Fertilizer Association of India but was not based on the type of crops to be cultivated and soil fertility level. In the absence of soil testing, farmers were not aware of required dose of fertilizers to be applied on their land. As a result, farmers were using fertilizers more than the required doses resulting in high rate of per hectare consumption.

Recommendation - 1

Department of Agriculture and Co-operation (DOAC) should ensure that the seasonal fertilizer requirements are assessed on a scientific basis, and not merely by adding a specified percentage to last year's consumption. For this purpose, DOAC should ask for submission of detailed fertilizer requirements (ideally upto block level), preferably in electronic format, so as to facilitate analysis and highlighting of discrepancies. The requirement of fertilizer of different types should also take into accounts stocks available in the States. Also, requirements of selected States/ Districts should be subjected to detailed scrutiny/ examination on a sample/ rotational basis.

Further, audit analysis revealed that the consumption of Urea, DAP/ MAP and NPK complexes (i.e. excluding MOP) broadly tracked the availability of fertilizers (i.e. production + import), rather than being in line with the assessed requirement of fertilizers, which should have been the case. In other words, the entire quantity of fertilizers available (except

for MOP) was supposedly consumed, which casts further doubts on the robustness of the process for assessment of requirements. This is brought out in greater detail in Chapter 5.

4.3 Buffer Stock

With a view to maintain stocks of urea in case of a shortfall in production due to disruption in supplies of feedstock or delay/disruption in imports and to tide over the sudden spurt in demand/shortages in any part of the country, the DoF was required to operate buffer stock through the State Institutional Agencies/Fertilizer Companies in major agricultural States up to a limit of 5% of their seasonal requirement. Further, in case of DAP and MOP, DoF was required to maintain the buffer stock through IPL during the period 2006-09 as under:

Table 4.2 - Details of buffer stock of DAP and MOP

Year	Product	
	DAP (MT)	MOP (MT)
2006-07	2,00,000	1,00,000
2007-08	3,50,000	1,00,000
2008-09	3,50,000	1,00,000

*Source DoF's order dated 28.7.2008

State wise details of allocated quantities of buffer stock are given in **Annexe-4.1**.

State findings revealed that in ten states (Andhra Pradesh, Assam, Chattisgarh, Gujarat, Haryana, Madhya Pradesh, Punjab, Rajasthan, Tamil Nadu and West Bengal), there were deficiencies in maintenance of buffer stock, as summarised below:

Table 4.3 - State-wise deficiencies in maintenance of buffer stock

Sl.No	Name of State	Deficiencies in maintenance of Buffer stock
1.	Andhra Pradesh	10,000 MT and 17,000 MT of DAP was to be maintained during 2006-07 and 2007-09 respectively as per the instructions of DoF dated 28.7.2008. However, no buffer stock of DAP was maintained upto September 2008 i.e. Kharif 2008.
2.	Assam	A buffer stock of 5000 MT MOP was to be maintained during 2006-09, out of which 5000 MT MOP was maintained only in March 2009.
3.	Chhattisgarh	5000 MT of DAP was to be maintained during 2008-09, but not maintained.
4.	Gujarat	5000MT MOP and 5000 MT DAP was to be maintained during 2008-09, but was not maintained.
5.	Haryana	No Buffer Stock of MOP (7000 MT each) was maintained during 2006-09. In the case of DAP, buffer stock of 31,666 MT and 11,330 MT only

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		was maintained against the prescribed limit of 35000 MT and 40000 MT respectively during the year 2006-07 and 2007-08.
6.	Madhya Pradesh	Buffer stock of urea was not being maintained by the institutional agencies in the test checked districts.
7.	Punjab	Against 55000 MT of DAP, 37000 MT of DAP only was maintained. Thus, the buffer stock was short maintained by 18000 MT.
8.	Rajasthan	The prescribed buffer stock of urea was not maintained during 8 months out of 14 months from September 2007 to March 2009 and the shortfall ranged from 38 to 95 per cent.
9.	Tamil Nadu	Buffer stocks of 10000 MT and 15000 MT of DAP during 2006-07 and 2007-09 and 7500 MT of MOP during 2006-09 were to be maintained. However, no records to verify the fact were made available to audit at the Commissionerate of Agriculture.
10.	West Bengal	The shortfall in maintenance of buffer stock in each month during the peak periods (May to December) ranged from 61 to 99 per cent and 40 per cent to 77 per cent during the years 2007 and 2008 respectively.