(b) whether within less than 3.5 months of its incorporation, the National Dairy Development Board sanctioned an amount of ₹ 33.39 crore to the said milk producing company, including Central Government grants under the National Dairy Plan (NDP) scheme amounting ₹ 22.28 crore and subject to the condition that the said company will contribute ₹ 11.7 crore, if so, the details thereof?

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE AND FARMERS WELFARE (SHRIMATI KRISHNA RAJ): (a) and (b) The milk producers of East Champaran district of Bihar came together to incorporate a producer company which was facilitated by National Dairy Development Board (NDDB) and incorporated on 12 April, 2017. The Board of Bapudham Milk Producer Company submitted a proposal to seek grant-in-aid under NDP I for implementation of Village Based Milk Procurement System. The project was approved with outlay of ₹ 3263.49 lakh (including Bapudham Milk Producer Company's contribution of ₹ 1107.54 lakh). The project targets to benefit 50,000 milk producers members in 1000 villages covering East Champaran, West Chaparan and Gopalganj districts.

Investment in agricultural research

2572. SHRI TIRUCHI SIVA: Will the Minister of AGRICULTURE AND FARMERS WELFARE be pleased to state:

(a) whether it is a fact that investment in agricultural research would help to reduce dependency on imports and add to the export capacity of the country;

(b) whether Government has designed an action plan to attract investment in agricultural research; and

(c) if so, the details thereof and if not, the reasons therefor?

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE AND FARMERS WELFARE (SHRI GAJENDRA SINGH SHEKHAWAT): (a) Yes, Sir. India with large and diverse agriculture is among the world's leading producers of cereals, millets, sugar, fruits and vegetables, spices and seafood products. India is supporting 17.84% world population with merely 2.4% of land and 4.0% of water resources. Hence, continuous investment efforts towards enhancing productivity, reducing pre and post-harvest losses, processing and value addition, development of technology and infrastructure is necessary for Indian agriculture. India has made substantial progress in agriculture by increasing production of cereals, oilseeds, sugarcane, cotton, fruits and vegetables and milk, and fishes over past six decades. Food grains production has increased to 284.83 million tonnes (Mt) in 2017-18 from 50.8 Mt in 1950-51, an increase of 5.6 times. Production of other agricultural commodities also increased

substantially during the period. The strong emphasis on research has contributed to a number of technology driven revolutions including the green revolution, white revolution, blue revolution and the golden (oilseeds) revolution. The increase in production is attributed to research and extension, policy support, use of inputs and public investment in infrastructure. The contribution of agricultural research in reducing dependency on import and raising self-sufficiency in food in India is well known and is cited with pride. India currently spends around 0.30 per cent of agriculture GDP on agricultural research. During the first three years of the current plan period (2017-18- 2019-20) the allocation for agricultural research has been enhanced and are; ₹ 6800.00 crores, ₹ 7800.00 crores and ₹ 8078 crores respectively.

The growth in food production induced by research in India, has not only reduced import dependency but has also added to export capacity, amounting to 17 Mt of cereals. In value terms, it comes to more than four-times the annual investment on agricultural research in the country. Further, agricultural research in India not only brought country self-sufficiency in cereals, it averted sharp increase in global grain prices, which otherwise could have adversely affected food security of a large number of low-income food-deficit countries.

India is currently exporting rice to the tune of ₹ 43,000 crores annually. R&D efforts of ICAR have also helped to increase the production to over 24.23 million tonnes of pulses per annum, making India almost self-sufficient in pulses and reducing the import bill from over ₹ 18000.00 crores per annum 3 years' ego to less than ₹ 5000.00 crores at present. Export potential of over 7 lakh tones have also been created in Sugar production mainly driven by the spread of high yielding varieties of sugarcane developed by the ICAR which have better sugar recovery. The development of sugarcane variety Co 0238 by ICAR-Sugarcane Breeding Institute (SBI) has improved average sugar recovery by 1.49 units (*i.e.* from 9.21% in 2013-14 to 10.7% in 2017-18), and average cane yield by 19 t/ha. (*i.e.* from 60 t/ha. in 2013-14 to 79 t/ha. in 2017-18). This improved yield has increased production significantly and will boost export further. The development and adoption of Bt cotton varieties has made the country second largest exporter globally and net trader of raw cotton. The export of raw cotton was 3.4 times than of its import (1162 thousand tonnes export against 341 thousand tonnes import) during the TE 2016-17. To reduce the import bill of edible oils, Government has given focused attention to the development of varieties oilseed crops which are high yielding; tolerant to drought, resistant to insect pests and diseases and high in oil per cent in mustard, groundnut and soybean. During the last 4 years 898 crop varieties/hybrids have been released of which 132 are of various oilseeds.

The export policy of the country recently approved by the cabinet envisages doubling agricultural exports from present ~US$ 30+ Billion to ~US$ 60+ Billion by 2022, to diversify our export basket, to include novel, indigenous, organic, ethnic, traditional and non-traditional Agri products, tackling barriers to deal with sanitary and phyto-sanitary issues and to enable farmers to get benefit of export opportunities in overseas market, which is in-line with vision of the Government to double farmers' income. Production of the large volumes of a wide range of exportable quality agricultural products require higher investments in research and development in agriculture and the current level of investment in agricultural research needs further enhancement.

(b) and (c) In addition to the normal budgetary allocation, the Government has taken efforts to attract external investments in agricultural research through schemes like National Agriculture Technology Project (NATP)/National Agricultural Innovation Project (NAIP) through world bank funding support. In addition, ICAR/ DARE encourages the scientists to earn competitive grants from various national and international agencies including DBT, ICMR, DST, BBSRC, ESRC, CDC etc. for supporting agricultural research. Besides, the Government is encouraging to research institutes under ICAR to generate funding for meeting the research expenditure by providing services and selling the agricultural produce. Research institutes are given targets to generate money. There are special incentives for development of technology by private sector and encourage companies to invest in research. The protection of plant varieties and patents has been strengthened to attract private investment.

Under International Collaborations, funding for agricultural research is received from many International agencies like IRRI, CIMMYT, ICARDA, Bill Melinda Gates Foundation, IAEA etc. under approved work plans. Besides, the Government of India has enabled the conducive environment for investment by the Indian and multinational seed companies in agricultural research and annual investment of more than ₹ 700 crores are being made by private seed companies. Foreign Direct Investment (FDI) has attracted many multinational companies for investing in agricultural research.

Cloud seeding experiments

2573. SHRI KUMAR KETKAR: Will the Minister of AGRICULTURE AND FARMERS WELFARE be pleased to state:

(a) whether in 2006, Dr. A.P.J. Abdul Kalam, then President of India had suggested to carry out cloud seeding experiments for 5 years to tackle drought; and

(b) if so, the reasons for not starting the experiments so far?