2018 at Pusa to chalk out a road map to achieve the target of doubling farmers' income by 2022 along with details thereof;

(b) the proposed time-frame for implementation of the outcomes;

(c) the details of various stakeholders who participated in the National Conference; and

(d) the number of farmers consulted to develop the road map along with details thereof?

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE AND FARMERS WELFARE (SHRI PARSHOTTAM RUPALA): (a) and (b) A National Conference on "Agriculture-2022 - Doubling Farmers' Income" was organized on 19th-20th February, 2018 at National Agricultural Science Complex, New Delhi in which participants comprising farmers, farmers' associations, scientists, economists, academics, trade and professional associations, policy makers and officers serving and retired from Central as well as State Governments participated. The main concern during the conference was to build a consensus around appropriate recommendations that will align with the vision of doubling of farmers' income by the year 2022 and to arrive at practical solutions for the benefit of farmers in the country. Some of the suggestions received during the conference are converting Waste to Wealth in mission mode, promote post-harvest infrastructure including cold chain, contract farming to be promoted and incentivized, widespread implementation of One-Nation One-Market, upgrade 22000 rural haats into Gramin Agricultural Markets (GrAMs), encourage Farmer Producers Organizations, Co-operatives, ensure warehouse receipts, notify agroforestry produce including timber/bamboo as agri-produce, model State/UT Agricultural Produce and Livestock Marketing (Promotion and Facilitation) Act, 2017 to be adopted in true sprit, etc. The outcomes arising from the conference and the suggestions received would be defined and focused for doubling farmers income by the year 2022.

(c) and (d) The final list of invitees/participants is available at http://nmoop.gov.in/conference/docs/List_of_invities.pdf. Consultations by group coordinators and facilitators were held during last the two months prior to conference. All the groups consulted farmers, farmer organizations, farmer interest groups and farmers of various States before arriving at the outcomes of the Conference.

Subsidy for agricultural machinery

2407. DR. PRABHAKAR KORE: Will the Minister of AGRICULTURE AND FARMERS WELFARE be pleased to state:

(a) whether Government proposes to further increase the subsidy level for the agricultural machinery;

(b) whether Government is making efforts to develop simple low-priced agri-equipments to help small and medium farmers;

(c) if so, the details thereof; and

(d) if not, the reasons therefor?

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE AND FARMERS WELFARE (SHRI PARSHOTTAM RUPALA): (a) Under Sub-Mission on Agricultural Mechanisation (SMAM), Government of India has enhanced the budget allocation from 194.87 crore during 2014-15 to 804.10 during 2017-18 which helps to allocate more budget to State Governments to implement farm mechanization programmes.

(b) to (d) Indian Council of Agricultural Research (ICAR) has developed about 150 various technologies through their All India Coordinated Project (AICRP) which are low cost and suitable for small and medium farmers.

The list of technology developed by ICAR is given in Statement.

Statement

Technologies developed for farm mechanization, processing and value addition of agro-produce by ICAR.

Farm implements, machines and technologies:

- Nitrogen dose estimation for top dressing in wheat and rice crop
- Animal drawn 3-row garlic planter
- Animal drawn garlic digger
- Single bud sett cutting machine for sugarcane
- Mechanized system for sugarcane budsett/bud chip treatment
- Manually guided power weeder
- Harvesting knife for oil palm
- Yield monitoring system for soybean-wheat cropping system
- Hearing impairment of tractor drivers

- Establishment of farm machinery bank at Gaildubba village of Chindwara district
- GPS based variable rate granular fertilizer applicator for basal dose application
- Spectral reflectance based prototype of variable rate urea application system for top dressing in rice and wheat crops
- Pre-emergence herbicide strip applicator
- Mechanization status of selected cropping pattern in Madhya Pradesh
- Economic evaluation and impact assessment of selected farm equipment
- Seed-cum-fertilizer drill with two stage fertilizer placement
- Multi-millet planter
- Three-row harvester for grain sorghum
- Three row automatic vegetable transplanter for potted seedlings
- Mechanical intra and inter row weeder for wide spaced deep rooted field crops
- Package of animal operated implements for different cropping systems in Madhya Pradesh
- Online database for anthropometric and strength data bank
- Hand held vegetable transplanter
- PTO driven automatic Total mix ration (TMR) delivery system for cattle
- Promotion of climate smart farm machinery in village Kacchi Barkheda
- Image based herbicide application system
- Lifting device for sick animals
- Zero-till planter-cum-residue mulcher for maize-wheat cropping system
- Horizontal bio-reactor for generation of bio-char from crop residues
- SPV based refrigeration system for storage of horticultural crops (6-7 tonne)
- Hot water treatment chamber and ripening chamber for fruits

- Bioreactor for accelerated composting of biomass
- Pilot plant for production of biochar from crop residue (500 kg capacity)
- Cook stoves on biomass briquettes
- Briquetting of jute sticks
- Solar powered knapsack sprayer (3 nozzle)
- Energetic of soybean-wheat cropping system of Hoshangabad district, MP
- Briquette based cookstove for thermal application
- Moringa leaf stripper
- Prototype for preparation of pro-biotic soya cheese
- Technology for products like composite flour eggless cake, multi-grain laddu, multi-grain tortillas chips
- Machine vision protocols/software for distinguishing among crop varieties
- Blending of millet flour with hydrocolloid for quality breads
- Complete mechanization package for banana central core
- Package of equipment for making rope from banana outer sheet
- ultrasonic sensor based spraying system for orchards
- microcontroller based automatic variable rate fertilizer applicator
- microcontroller based sugarcane bud cutting and planting technology
- tractor operated check basin former
- tractor operated mulch cum drip laying cum seedling planter
- tractor operated system for controlled level puddling
- tractor drawn turmeric rhizome planter
- paddy transplanter as an attachment to four wheel drive tractor
- 3 row tractor operated sorghum harvester
- Tractor operated fertilizer dibbler for ratoon sugarcane and tractor operated small seed planter

- Bullock drawn Stubble collector
- Bullock drawn Farm Yard manure spreader
- Bullock drawn Two row, three row and four row Seed drill
- Bullock drawn Seed-cum-fertiliser drill
- Bullock drawn Zero-till drill
- Bullock drawn Inclined plate planter
- Bullock drawn 4-row Seed drill for intercrop
- Bullock drawn Garlic planter
- Bullock drawn Turmeric planter
- Bullock drawn 3 and 5 tyne biasi plough
- Bullock drawn Drum seeder
- Bullock drawn Weeder
- Bullock drawn Potato digger
- Bullock drawn Groundnut digger
- Bullock drawn engine operated sprayer
- Bullock drawn solar Sprayer
- Cono weeder
- Ragi pearler
- Arecanut Sacrifier
- Cashewnut sheller
- Large cardamom harvesting knife
- Improved bamboo ladder for harvesting of apple
- A low cost ropeway for agricultural material handling in hill areas

Post harvest processing and value addition technologies:

- Chilli destalking machine

- Shrink packaging line for cauliflower
- Litchi destoning machine, Improved pulse dehulling machine
- Pilot plant for production of fruit bar, Onion grader
- Mechanical peeler for citrus
- Specialized bag for wheat storage
- Active packaging film/material for ethylene absorption
- Animal squeeze for restraining large animal
- Fumigation chamber for grapes
- Sensor based quality sensing system for mushroom and pomegranate arils
- Pilot plant for mustard based taste enhancer
- Mechanized system for production of functional meat products
- Package of equipment for processing of garcinia combogia
- Health response of soya products on animals
- Technology for lab scale production of soy protein hydrolysates
- Pneumatic Conveyor-cum dryer, Flaking machine & belt conveyor assembly
- Ready to cook products from millets
- Millet processing mill
- Cauliflower floret cutters
- Pilot scale modified atmosphere storage system for selected fruit and vegetable
- Starch/PLA based biodegradable film for packaging of fresh produce
- Small scale lac processing unit (capacity - 100 kg/day) for primary processing of lac at village level

Process Protocol and Value Added Products:

- Pseudo-cereal based composite flour
- Anthocyanin enriched functional food products

- Low methoxyl pectin based food products
- Fat replacers for low-fat meat product
- Functional health promoting meat product
- Mineral fortified wheat dalia and flour
- Mustard based tastemaker
- Soft textured fruit candy
- Value added ber products
- Protocol for fumigation of grapes
- Low glycemic food products
- Antioxidant rich fruit beverages
- Process for packaging and storage of dried destalked chillies
- Technology for flax seed based extruded snack and Diabetic Flaxi Bar
- Protein rich flour formulations based on nutritional requirements of children
- Ready-to-use Comfo (complementary food) spread
- Complementary health Beverages

Jute related technology:

- Power Ribboner machine for jute and mesta
- Jute grading instruments like Electronic Fibre Bundle Strength Tester, Digital Moisture measurement meter, Digital Fibre Fineness tester, Colour and amp; lusture meter
- Dyeing of jute fabric with natural dyes extracted from manjista, annatto, babool and amp; ratanjot with
- improved fastness characteristic
- Dry retting of jute plant for extraction of fibre using pectinolytic fungal culture
- Lignocellulosic fibre based agrotextiles for higher yield of horticultural crops
- Natural fibre-based geo-textiles and placement system for protection of riverbank and improvement of soil stabilization

- Ornamental jute fabric using handloom
- Jute Stick Particle Board
- Jute based handmade paper
- Jute based reinforced concrete products

Cotton related technologies:

- Chemo mechanical method for preparation of nano cellulose
- Nano Cellulose Pilot plant
- Degossipolisation of cotton seed meal for use as feed for non-ruminents (poultry and fish)
- Cotton Bamboo blended fabric for active wear
- On Board pre-cleaner for mechanically picked Cotton
- Multi axial electro spinning technology to produce nano fibres
- Protocol for ginning long staple Indian cotton on Rotary Knife Gin
- Pelleting Plant (based on Cotton Residues) established
- Nano-lignocellulose was produced from coconut fibre for composites
- Low Salt Dyeing Process for cotton developed
- Machinery for extraction of fibre from pineapple and flax
- Grading equipment for Ramie fibre.

Damage to crops due to unseasonal rains and hailstorms

2408. SHRI SANJAY SETH: Will the Minister of AGRICULTURE AND FARMERS WELFARE be pleased to state:

(a) whether unseasonal rains and hailstorms have damaged Rabi crops such as wheat, chana and bajra besides high value horticulture crops in several parts of the country including Marathwada and Vidarbha;

(b) if so, the details thereof;

(c) the estimated quantum of crops affected and damaged and the amount of loss to farmers;