SOIL HEALTH CARD BOOSTS Farm Income Up To Rs 30,000/Acre

Press Trust Of India

Use of soil health card has helped farmers reduce substantially the cost of production and achieve higher production, thereby increasing farm income up to Rs 30,000 per acre, depending on the crop, according to a latest government study.

The study, conducted by the National Productivity Council (NPC) in 76 districts of 19 states - covering 170 soil testing labs and 1,700 farmers, has been released on the completion of five year of the government scheme.

Soil health card provides information to farmers on nutrient status of their soil along with recommendation on appropriate dosage of nutrients to be applied for improving its health and fertility.

"In absence of the soil health cards, it was acknowledged by the farmers that adequate quantity of fertilizers and micro-nutrients were not being applied by them earlier and this had affected the productivity of crops," the study said.

According to the study, savings on fertilisers and increase in production led to increased income of the farmers.

For instance, there was Rs 25,000-30,000 per acre increase in in come from tur, around Rs 25,000 per acre from sunflower, Rs 12,000 per acre from cotton, Rs 10,000 per acre from groundnut, Rs 4,500 per acre from paddy and Rs 3,000 per acre from potato, it said.

Application of fertilisers as per the recommendation of soil health cards led to savings in nitrogen fertilisers like urea, thereby resulted in reduction in cost of cultivation.

In case of rice, the cost of cultivation was reduced by 16-25 per cent and savings of nitrogen was found to be around 20kg/acre. In pulses, there was 10-15 per cent reduction in cultivation cost and savings of 10kg/acre urea.

Similarly in oilseeds, the reduction was 10-15 per cent and savings on nitrogen was 9kg/acre in sunflower, around 23kg/ acre in groundnut and around 30 kg/acre in castor.

Among cash crops, the reduction in cotton was 25 per cent and and savings on nitrogen fertiliser was around 35 kg/ acre, while in potato the saving on nitrogen fertiliser was 46 kg per acre, the study added.

Stating that judicious use of fertilisers also resulted in increased production of crops, the study showed that there was 10-20 per cent increase in production of paddy and 10-15 per cent in wheat and jowar.

There was 10-30 per cent rise in production of pulses, 40 per cent jump in oilseeds and 10-20 per cent in cotton production, it said.

Under the scheme, soil health card is issued farmers every 2 years so as to provide a basis to address nutritional deficiencies in fertilization practises. Since launch of the scheme, the card has been issued twice.

In the first cycle from 2015 to 2017, 10.74 crore soil health cards were distributed to farmers. In the cycle-II (2017-19), 11.69 crore soil health cards have been distributed to farmers across the country.

Instead of sample collection at grid level, the government has started a pilot project from this fiscal onwards to collect samples at 'individual farm holding'.

Under the pilot, one village per block is adopted for land holding-based soil sampling, testing and organisation of larger number of demonstrations up to a maximum number of 50 demonstrations (1 hectare each) for each adopted village.

So far, 6,954 villages have been identified by the states in which against the target of 26.83 lakh samples, 20.18 lakh samples have been collected, 14.65 lakh samples have been analyzed and 13.54 lakh cards have been distributed to farmers, the government said.

Apart from this 2,46,968 demonstrations and 6,951 farmer melas have been approved for states and union territories.

The government also mentioned that the soil analyzing capacity in the country has increased from 1.78 crore to 3.33 crore samples per annum in short period of five years.

So far, 429 new static soil testing labs (STLs), 102 New Mobile STLs, 8752 Mini STLs have been provided. Village level soil testing facilities (VLSTLS) by agri-entrepreneurs have also been promoted and so far 1,562 VLSTLs have been sanctioned and strengthening of 800 existing STLs have been approved to states/UTs under the scheme.

Soil health card provides two sets of fertiliser recommendations for six crops, including recommendations of organic manures. Farmers can also get suggestions for additional crops on demand. They can print the card on their own from soil health card (SHC) portal.

Mediterranean Diet May Boost Gut Bacteria Linked To 'Healthy Ageing': Study

Press Trust Of India

Eating a Mediterranean diet, which includes meals built around fruits and vegetables, boosts gut bacteria linked to 'healthy' ageing, while suppressing microbes associated with harmful inflammation, according to a study which may lead to better clinical food recommendations for old people.

The study, published in the journal Gut, noted that ageing is associated with deteriorating bodily functions and increasing inflammation, and the Mediterranean diet may act on gut bacteria in a way that helps curb the advance of physical frailty and cognitive decline in old age.

According to the researchers, including those from the University College Cork in Ireland, a poor diet, which is common among older people, particularly those in long term residential care, reduces the range and types of bacteria (microbiome) found in the gut, and speeds up the onset of frailty.

In the current study, they analysed the gut microbiome of 612 people aged 65 to 79, before and after 12 months of either eating their usual diet, or a Mediterranean diet rich in fruits, vegetables, nuts, legumes, olive oil and fish, and low in red meat and saturated fats.

According to the findings of the study, sticking to the Mediterranean diet for 12 months was associated with beneficial changes to the gut microbiome.

The diet was linked to an increase in the types of bacteria previously associated with several indicators of reduced frailty, such as walking speed, hand grip strength, and improved brain function, such as memory.

The study also noted that the diet was related to reduced production of potentially harmful inflammatory chemicals.

A detailed analysis revealed that the microbiome changes were linked to an increase in bacteria known to produce beneficial short chain fatty acids, and a decrease in bacteria involved in producing bile acids.

The researchers added that the overproduction of these bodily chemicals are linked to a heightened risk of bowel cancer, insulin resistance, fatty liver, and cell damage.

According to the scientists, the bacteria which proliferate in response to the Mediterranean diet may act as 'keystone' species, meaning they are critical for a stable 'gut ecosystem,' pushing out microbes associated with indicators of frailty.

They said the changes were largely driven by an increase in dietary fibre and associated vitamins and minerals -- especially, C, B6, B9, copper, potassium, iron, manganese, and magnesium.

The findings, the researchers said, were independent of the person's age or weight, both of which have been shown in earlier studies to influence the make-up of the microbiome.

However, they said, the study did not establish a causative role for the microbiome in health.

"The interplay of diet, microbiome and host health is a complex phenomenon influenced by several factors," the researchers reported.

"While the results of this study shed light on some of the rules of this three-way interplay, several factors such as age, body mass index, disease status, and initial dietary patterns may play a key role in determining the extent of success of these interactions," they added.

Facial Expressions Not True Indicator Of Emotions, Study Suggests

Agencies

Drawing cues from someone's facial expression might be a wrong approach to conclude about people's feelings as new research suggests that facial expressions might not be reliable indicators of emotion. The study also puts emphasis on not to trust a person's face. Aleix Martinez, a professor of electrical and computer engineering at The Ohio State University, focused on the question of 'Can we truly detect emotion from facial articulations?' The answer to the question majorly came as "no, you can't".

Martinez and his colleagues' work has focused on building computer algorithms that analyze facial expressions.

The researchers analyzed the kinetics of muscle movement in the human face and compared those muscle movements with a person's emotions. They found that attempts to detect or define emotions based on a person's facial expressions were almost always wrong. "Everyone makes different facial expressions based on context and cultural background," Martinez said.

And it's important to realize that not everyone who smiles is happy. Not everyone who is happy smiles. I would even go to the extreme of saying most people who do not smile are not necessarily unhappy. And if you are happy for a whole day, you don't go walking down the street with a smile on your face. You're just happy."

It is also true, Martinez said, that sometimes, people smile out of an obligation to the social norms. This would not inherently be a problem, he said -- people are certainly entitled to put on a smile for the rest of the world -- but some companies have begun developing technology to recognize facial muscle movements and assign emotion or intent to those movements.

The danger, Martinez said, lies in the possibility of missing the real emotion or intent in another person, and then making decisions about that person's future or abilities.

After analyzing data about facial expressions and emotion, the research team -- which included scientists from Northeastern University, the California Institute of Technology and the University of Wisconsin -- concluded that it takes more than expressions to correctly detect emotion. If not facial expression, facial colour, for example, can help provide clues to some extent.

"What we showed is that when you experience emotion, your brain releases peptides -- mostly hormones -- that change the blood flow and blood composition, and because the face is inundated with these peptides, it changes colour," Martinez said.

The human body offers other hints, too, he said: body posture, for example. And context plays a crucial role as well.

Smart Jumpsuit To Track Development Of Infants

Agencies

In a first, researchers have come up with a smart jumpsuit that is capable of measuring the spontaneous and voluntary movement of infants starting from the age of five months.

The information which is subsequently gathered could possibly help in assessing abnormal neurological development, among other things.

The study on the smart jumpsuit and the related analysis method applied to seven-month-old infants was published in the Scientific Reports journal. In the future, the jumpsuit can also be used to study older children.

Previously, the quantitative tracking of children's spontaneous motility in the natural environment has not been possible. Instead, children have been primarily qualitatively assessed at the physician's or physiotherapist's practice, which requires taking into account the fact that the infant's behavior in the practice setting does not necessarily entirely match that seen at home.

"The smart jumpsuit provides us with the first opportunity to quantify infants' spontaneous and voluntary movements outside the laboratory. The child can be sent back home with the suit for the rest of the day. The next day, it will be returned to the hospital where the results will then be processed," explains Sampsa Vanhatalo, professor of clinical neurophysiology at the University of Helsinki.

Vanhatalo says that the new analysis method quantifies infant motility as reliably as a human being would be able to do by viewing a video recording.

After the measurement, the infant's actual movements and physical positions will be known to the second, after which computational measures can be applied to the data.

"This is a revolutionary step forward. The measurements provide a tool to detect the precise variation in motility from the age of five months, something which medical smart clothes have not been able to do until now," added Vanhatalo.

The data gleaned by the smart jumpsuit is valuable since the detection of abnormalities in the neurological development of infants at an early stage enables early support.

Brain plasticity is at its strongest in early childhood and is benefited by measures supporting development, which are targeted at recurring everyday activities.

At least 5% of Finnish children suffer from problems associated with language development, attention regulation, and motor development.

Often, such problems overlap. The pathogenic mechanisms underlying developmental disorders are complex, but preterm birth, perinatal brain damage and the lack of early care, as well as insufficient stimulation in the growth environment, aggravate the risk of developmental problems.

According to Leena Haataja, professor of pediatric neurology, developmental disorders in today's pressure-dominated world pose a considerable risk that can lead to learning difficulties and obstacles in the competition for education and jobs. Furthermore, they are a risk factor associated with exclusion from contemporary society.

In the future, smart jumpsuit can be used for the objective measurement of how various therapies and treatments affect children's development.