

Tackling Farmer Distress, the Uber Way

How an agri startup is taking new tech and tools with a pay-per-use model to the small farmer

:: Malini Goyal

Bal Kishan Meena, 54, needed little coaxing when he got an opportunity to try out what EM3 Agri Services had on offer. The startup offers farm equipment services on a pay-per-use basis. In 2014, when it set up its first centre called Samadhan in Meena's village Hasalpur in Hoshangabad district in Madhya Pradesh, he was among the first to try its service.

But then Meena isn't your average farmer. In India, where average farm holding is under 3 acres, he manages 100 acres of farmland, 30 acres of which is his own while the rest belongs to his brothers who work in cities. A *sanchalak* (or a trained farmer) for ITC Ltd's e-Choupal initiative, Meena's three children study in Bhopal. His 21-year-old daughter has just finished her engineering degree and is now preparing for competitive exams. "I want us farmers to progress, try new things that could help us," he says.

With EM3, Meena got a chance to try out a paddy transplanter machine, something he hadn't heard of before. The machine could cover one acre in 35 minutes, a job that would otherwise take two farm labourers two days to complete. "Manually, the quality was not as good and uniform. It required monitoring, too. And the cost difference wasn't much," he says.

That was just the start. Meena is now a convert, using EM3's virtually entire range of farm equipment – from the laser-levelling machine, which levels the



Rohtash Mal, cofounder, EM3 Agri Services

Farms in Crisis The Back Story



DISTRESSED FARMERS

In perpetual crisis due to small land parcels and mostly subsistence farming

LOW YIELDS

Despite having the second largest arable land globally, India's crop yield is low and wastage is high



ARCHAIC METHODS

Farm mechanisation in India is low and farmers have very limited access to technology

LABOUR ISSUE

263 m workers work on farms, but low incomes and urban migration will result in that number declining



ground with precision, to the MB Plough for deep ploughing, to the power harrow to make seed beds. "Its equipment range is high-end, its services are very good and the charges are reasonable," says Meena.

Smaller farmers, too, find EM3 services useful. Arvind Kourav, 47, owns seven acres of land on which he grows paddy, wheat, sugarcane and arhar (pigeon pea). Earlier he would hire equipment from others. "But they were not available when needed. Or were never punctual. But these people come on time and do the job well," says Kourav.

A Ray of Hope

In a country in the throes of change, farming and farmers have almost stood still. From debts to droughts, farmer suicides to crop failures, poverty to starvation, rural India's problems remain predictable and familiar. This is not for want of attention. In a democracy where agriculture

employs over half the workforce, it is a constituency that carries significant political and economic weight. Unsurprisingly, policies, funds and sops from the government are in abundance. Yet, agriculture has remained in a time warp. Despite having the second largest quantum of arable land in the world, India's crop yield is 30-60% of other developing countries. Outdated techniques, small farms, flawed government policies, poor infrastructure and high post-harvest loss are among the issues that have hobbled agriculture in India.

It is in this context that EM3 Agri's small steps gain significance. Founded two years ago by Rohtash Mal, 62, and his US-educated son Adwitiya, 33, the startup wants to change the way farming is done in India. Inspired by ride-sharing firms like Uber, EM3 wants to "Uberise" farm services. "We want to bring relevant global technologies and equipment to India and make them ac-

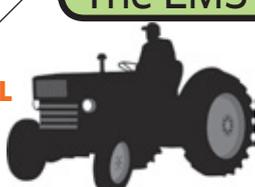
The EM3 Answer

SERVICE CENTRE



A service centre called Samadhan requires an investment of up to ₹1.5 crore, employs 10-15 people, can serve up to 2,000 farmers in a 5-10 km radius. It could have up to 5-10 tractors and 25-30 pieces of equipment like harvesters, power harrows, laser-levellers

FAAS MODEL



Think of FAAS or farming-as-a-service as the Uber for farmers. All the equipment are owned and operated by Samadhan staff, hired locally. Farmers can schedule the service by visiting the centre or through a phone call. They get a specific time slot and pay on an hourly or acreage basis

NEW TECH



EM3 is bringing access to high-end tools and technology that farmers do not know of and cannot afford. It is in talks with MNCs like Trimble to bring products like GreenSeeker that can send reports on the health of plants by remotely taking satellite images and give remedial advice

ADVANTAGES



Farmers' adoption of technology is poor. EM3 brings tech to them. Pay-per-use model is also affordable for farmers. With local staff, free demonstration of new technologies and timely and professional service, FAAS' adoption rate is rising

Bal Kishan Meena, 54
 A father of three, **owns 30 acres and manages 100 acres**

Among EM3's first customers, he has used a range of services – from the paddy transplanter, harvester to laser-leveller. **Using the laser-leveller has helped him save water by 20% and boost crop output by 2-4%**



"I have my own tractors. But their 4-wheel tractors are better, as they do not get stuck in the fields"

cessible and affordable to Indian farmers with FAAS (farming-as-a-service) where they pay per use," says the senior Mal. He claims that their laser-levelling machine has cut down water usage by up to 30% and its power harrows have increased crop productivity by almost 20%.

Mal's idea has investors excited. Last summer, EM3 raised its first round of equity funding of ₹27.5 crore from Soros Economic Development Fund, via Aspada Investments, a fund that focuses on early-stage businesses in India in sectors like health-care, agriculture and education. "Agriculture is fairly regressive in India," says Kartik Srivatsa, cofounder, Aspada Investments.

"As a model, pay-per-use service is gaining traction. EM3 has a fairly deep understanding of how to accomplish it in the agri sector. We are very satisfied with the progress they have made," adds Srivatsa.

The idea occurred to Mal senior – a seasoned executive with stints at companies like Maruti Suzuki and the Bharti Group – when he was chief executive of Escorts Ltd. "We were pushing costly tractors to farmers who could ill afford them. Often indebted, benefits for them were not commensurate. Remember, it was tractorisation, not mechanisation of farmers, who had no alternative," says Mal. Buying a tractor makes sense for a farmer who has farmland of over 50 acres. An average farmer's landholding in India is under three acres. "It is not just about tractors – it's the farm implements that make the biggest difference," adds Vijay Rawal, director, Lemken India Agro Equipment.

Union Agriculture Minister Radha Mohan Singh too agrees. He says that farm mechanisation will cut cultivation cost by 25% and raise productivity by 20% and will be critical in boosting farmers' income.

Inspired by Uber

There are companies like the 16-year-old MachineryLink in the US with a business model similar to that of EM3. The difference, though, is that farmers in most mature markets have large land holdings and very different business dynamics. Those dynamics, for instance, allowed the American company to introduce an online platform called MachineryLink Sharing last year, which helps farmers rent out their expensive farm equipment, improve utilisation and make some money.

Such a platform may be irrelevant in India, dominated as it is by small farmers and low mechanisation. However, that could be why EM3's pay-per-use service has tremendous potential. The tractor and farm equipment service market is estimated by analysts to be worth ₹15,000 crore annually. Today that business is largely unorganised, dominated by solo rich farmers or government-subsidised custom hiring centres (CHCs) run by individuals who have limited scale and reach. Understandably, their implements are basic and the service patchy. "They don't come on time, their quality of work is unsatisfactory and they do not have high-end equipment like laser levellers and paddy transplanters that EM3 has," says Utam Meena, a farmer from Hasalpur who owns 100 acres of farm land.

EM3 has 10 Samadhan centres with 150 people in Madhya Pradesh and is working with potato farmers in partnership with multinational McCain Foods (India), a maker of French fries and potato specialities, in Gujarat. With some learnings and successful pilots, it is now gearing to expand aggressively pan India. In 24 months, cofounder Adwitiya hopes to have centres in 150 districts in Uttar Pradesh, Chhattisgarh, Rajasthan, Haryana, Gujarat, among other states, with a staff strength of over 1,500.

Farm equipment majors have taken note of the first mover in pay-per-use services. Early this year, Mahindra & Mahindra flagged off an agri-equipment rental service with the brand Trringo with an initial corpus of ₹10 crore. Complementing its tractor business, the venture will take the franchise route to grow and will target farmers who are not able to afford tractors or farm equipment. Trringo plans to

"Samadhan is professional; they come on time. I have less of a headache managing labour who are unpredictable"



Lalita Meena, 40
 A mother of two, **she owns 4 acres of land**

Grows maize, mung, paddy and wheat and has **used EM3 for paddy transplanting and harvesting services**

set up 165 centres in 2016, with each centre covering 80-90 villages. "We aim to make farm mechanisation accessible to all farmers, irrespective of how much land they own," says Arvind Kumar, CEO, Trringo.

EM3, unlike M&M, has full control over all its Samadhan centres.

Warming Up to a New Idea

In the beginning, farmers greeted Mal's model with scepticism. He remembers how, two years ago, a farmer from a gathering of 150-odd came up to him and bluntly said in front of the crowd: "Let's see how long you *shahari babu* (city dweller) last here with no power, drinking water." An MLA likened Mal to "seasonal frog", someone who comes to peddle their products and moves on.

Mal remained undeterred. Free demonstrations were the easiest way to both showcase his service and win over farmers. Last June, when he introduced a brand new paddy transplanter machine in Hasalpur, he did a free demonstration on 52 acres of farmland. The crop output was up over 30% and farmers didn't need much coaxing thereafter. He did something similar for laser levellers, a hi-tech equipment for levelling fields and which allows for efficient and even irrigation.

The cost of each Samadhan centre is currently ₹1.5 crore (it could go up later); typically, a centre has 5-10 tractors and 25-30 equipment pieces and would take up to two years to operationally break even. While there are government subsidies, EM3 has steered clear of them as Mal prefers to "have full control over operations".

"So far our focus was on large farms.

We are now working with EM3 to bring India-specific solutions"



Rajan Aiyer,
 country head, Trimble

Arvind Kourav, 47
 A father of two, **he owns 7 acres of land**

Grows sugarcane, wheat, paddy, arhar on the farm. **Has used EM3's services and says it works out cheaper.** He says harvesting and threshing wheat in one acre with a fully automatic harvester costs ₹1,500 and takes an hour. Manual labour could cost up to ₹4,000 over eight days for the same job



"Their machines do a quicker and better job. The harvested crop is cleaner"

“Their Services are More Competitive Than Manual Labour”



Kartik Srivatsa is the cofounder of Aspada Investments, which has raised funds from Soros Economic Development Fund. He has also been an investment advisor to the SONG Fund, an early-stage fund backed by Soros Economic Development Fund, Omidyar Network and Google. At Aspada Investments, he is focused on investments in early-stage businesses in healthcare, agriculture and education sectors in India. Its main focus is to look at ventures that create access, provide livelihood and market linkages for primary services like agriculture for the Indian masses. Srivatsa, an IIT alumnus who has worked with Lightspeed Venture Partners in the past, invested ₹27.5 crore in EM3 AgriServices in 2014. He shares his rationale behind the EM3 investment and the journey so far:

Why EM3

Our fund's focus is to improve livelihood and access to market for primary services that cater to the masses. The agriculture sector with millions of farmers is of particular interest to us. EM3 has been proactively researching and exploring this space.

On agriculture

There are two major levers of change in the sector – improving inputs or boosting productivity. We are keen to explore how we can bring mechanisation that is suitable for India. India will never have large landholdings. So we need to find solutions that are viable here.

The EM3 model

Pay-per-use is gaining traction in so many areas. You can go to Amazon to use servers and pay per use. Agriculture in India is fairly regressive. EM3 has deep under-

standing of how pay-per-use model can be brought to agriculture. We have worked with them to co-create the model. FAAS (farming as a service) has big potential.

Journey so far

We have been very satisfied with the progress so far and the business model that they are evolving. They are building a platform that is scalable and can spread pan India. It is interesting that their services are more competitive than manual labour. Now we are going to scale very quickly. EM3 can be the beachhead to how agriculture will grow in India.

Its significance

This is one of the few areas in agriculture where you can offer services to farmers and be operationally and commercially viable. With time, as they collect some primary data on farmers, they can explore other products and services like offering financing etc, all of it keeping farmers at the centre.

Challenges ahead

How do you scale faster and continue to improve agricultural productivity?

That's a big one. Operating in low-skill environment, they need to build systems around training, maintenance etc, that make economic sense. Agriculture has never been aspirational – how do you make it cool and reclaim its primacy? Even if EM3 is wildly successful, it will not be able to solve all of agricultural problems. It requires

a constructive dialogue with the government. India has the second largest arable land in the world. EM3 can lead the way in showcasing a FAAS platform that is scalable and also viable.

“India can lead the way in showcasing a FAAS platform that is scalable and also viable”

EM3 is slowly but surely putting in place structures and processes to enable all centres to be remotely tracked from Delhi, keeping tight control over service quality. In future, EM3 wants to turn into a full-fledged agri-marketplace, offering a comprehensive range of farmer-centric services across crop lifecycles – from credit to insurance to helping farmers buy and sell crops through mobile phones. With data on farmers and their crop output, EM3 wants to use analytics to deliver other goods and services to them.

Mal is clear about a few things. All his Samadhan centres will be owned and operated by EM3, avoiding the franchise route. “That's the only way I can ensure good service,” he says. Staff at the centre are locally hired, often in partnership with ICICI Foundation, which trains youth for different skills. The staff is put through regular training programmes – in house or with partners like John Deere – to upgrade and learn new skills. Preetam Verma, 35, is one of them. He has not even passed Class 8, but for 15 years he worked as a helper in a tractor showroom in Hoshangabad in Madhya Pradesh, drawing a monthly salary of ₹8,500. He joined EM3 in 2014 at a salary of ₹7,000 and now draws ₹12,000. At EM3, he has learnt to operate machines like harvesters, cultivators, laser levellers, and has travelled to Pune, Delhi and Patiala for training. He likes the fact that this is a regular job with provident fund and insurance cover and farmers are grateful when he does a good job. “When I finish working on the farm, farmers have to fill a *santushti* (feedback) form,” he says.

EM3 is stitching up a range of partnerships with ITC's e-Choupals, Syngenta Foundation, farmers' cooperative SFAC, John Deere and Trimble. It works closely with *sanchalaks* of ITC e-Choupals to reach out to farmers. With Syngenta Foundation, it developed an irrigation facility on a build-operate-transfer basis for water-deprived belt in Maharashtra for small and medium farmers. Now it is being expanded to other states and services. John Deere helps in equipment training of EM3 operators, among other things.

Waves of Change

For EM3, the timing could not have been better. Rising wages and scarce farm labour are pushing farmers to explore mechanisation. Rajeev Choudhary, director of agriculture engineering at the department of agriculture in Madhya Pradesh, says every year 3-4 lakh agricultural labourers in the state migrate to cities, leading to labour shortage.

With a litany of failed policies and schemes, the Centre is taking a fresh stab at how to address the agriculture crisis. In this year's budget, it set a target to double farmers' incomes. From irrigation to fertiliser subsidies, the government is overhauling some of the policies to address farmers' needs better. India is also looking overseas for help. For example, Haryana is piloting micro irrigation projects with the help of Israel, a world leader in irrigation technologies.

The biggest mechanisation push is probably coming from a growing segment of private companies that are looking at India's agriculture more closely than ever before.

New players are entering the fray and old ones are scaling up operations. Beri Udyog Ltd (brand Fieldking), established in 1978, had just 10 pieces of equipment in its stable a decade back. Today, the range has risen to 75 and it also exports to 82 countries. In January, it will start its 35-acre factory built at a cost of ₹200 crore, substantially bigger than its existing 7-acre plant. “We expect demand to grow. EM3's pay-per-use is timely. For farmers, owning a tractor is just not sustainable,” says Fieldking's MD Ravi Beri. Similarly, homegrown firm Shaktiman Farm Machinery is developing hi-tech implements with lower horse power, specific to Indian needs. It has launched implements like rice planters, cotton pickers and sugarcane harvesters. MD Hasmukh Gohil says aggressive pricing and locally suited products are putting pressure on global implements firms to rejig strategies.

German firm Lemken is a good example. In India since 2010, it set up its manufacturing facility in Nagpur in 2013 which helped bring down costs. For example, a 2.5 metre imported power harrow that would cost ₹11.5 lakh could be made for ₹3 lakh locally. Their farm implements mostly

work on 50HP-plus tractors, a small proportion – about 10% – sold here. With low sales, it currently exports to utilise capacity. In the future it may explore developing India-specific products, says Rawal of Lemken India. Meanwhile, firms like EM3 with high-end tractors could offer implements and services to customers on a pay-per-use basis.

Israel too is looking at the space closely. “India needs affordable solutions. Israel has the answers,” says Anat Bernstein-Reich, chairperson, Israel-India Chamber of Commerce. About EM3, she says that since it is a startup “it has no legacy, no old relationship to protect. Frugal and agile, it can help farming

leapfrog in India”.

Among the world leaders in agriculture technologies, Israeli firms are exploring areas like drip irrigation, remote soil testing, remote pest tracking and management. EM3's Mal is also exploring the possibility of bringing post-harvest technologies that allow farmers to dry, pack and store grains safely, a solution that farmers in Hasalpur are eager to use.

US-based Trimble Navigation, which specialises in remote-sensing technologies, is in talks with EM3 to bring a handheld device called GreenSeeker. The device can take images of plants, analyse them and predict their health and vigour and then suggest inputs required in real time. The service is expensive, hence Trimble is working out a pay-per-use model for EM3 customers, something it is doing for the first time anywhere in the world, says its India MD Rajan Aiyer.

Despite the odds, Mal senior is clear that he is here for the long run. Investor Srivatsa too is well aware of the challenges ahead. “Even if EM3 is wildly successful, it will not be able to solve all of India's agriculture problems. Government's role is critical. One needs a constant, constructive dialogue with the government,” says Srivatsa. EM3, though, is well placed to do its bit to improve farm productivity. ■



“Frugal and agile, a startup like EM3 can help farming leapfrog in India”

Anat Bernstein-Reich, chairperson, Israel-India chamber of Commerce