AMIT research – East

Report for year 2002

1 Background

The AMIT East research began in November 1999 with the introduction of drum kits in Ranchi. By July 2002 the project completed six cropping seasons in a span of three years during which IDE had tested and promoted AMIT micro irrigation kits in Ranchi[1], Purulia[2] and other surrounding districts (Jamshedpur, Chaibasa and Bankura). Throughout these seasons, EDA Rural Systems documented the dissemination process, profiling the context, the farmers' response and the role of intermediaries.

During the previous two years, EDA submitted seasonal reports of its findings in Ranchi, Purulia and Jamshedpur. This report for the current year reviews the rabi 2001-02 season and focuses on the zaid 2002 season when AMIT adoption reached its peak.

2 Methodology and scope

Field work was carried out towards the end of the Zaid season – in July - using the same methodology as in the previous years: individual interviews, checklists, observation. The approach involved interviews with old AMIT adopters and new AMIT adopters, observation of AMIT plots with standing crops, and discussions with IDE AMIT staff in Ranchi, supply chain players and NGO resource persons (Table 1). Areas visited were in Ranchi, Purulia and Jamshedpur. Details in Annex Table 1

Table 1

Summary of interviews

Entity interviewed	**Number**
Adopters	
Old	50
New (*rabi and zaid*)	44
Non-adopters	15
NGOs	4
Supply chain players	2

The intention of the research had been to document changes over time, using detailed village and farmer profiles from year 1. However, this has not been possible because of a high failure rate of the initial kits distributed and the subsequent shift of AMIT dissemination (away from Ranchi). Five villages and 20 farmer case studies were completed as a 'baseline' in 2000. Out of these only two farmers in as many villages were still a part of AMIT programme during 2002

1 Ranchi was a part of the state of Bihar when the research began. Subsequently it became the capital of the state of Jharkhand which was separated from Bihar during the year 2000.

2 Purulia is one of the districts in the state of West Bengal.

3 AMIT Marketing

For the agricultural year, IDE started its AMIT promotional campaigns in December 2001. The Area Marketing Manager (AMM) in Ranchi coordinated the process and a Marketing Assistant (MA) assisted him in the field. The market development activities were mainly focused on Purulia and two temporary staff were hired here to increase the AMIT outreach during the zaid season.

IDE's main effort this year was on direct sales and after sales services to individual farmers. Though the sales volume through NGOs was quite high, it resulted from bulk sales to only five NGOs out of which, SRI, an old AMIT partner alone purchased ~85% of the kits.

Live demonstrations, short campaigns and village camps were held to promote individual sales. IDE improved AMIT packaging to add more appeal and introduced product innovations to enhance AMIT's popularity and off-take in the region. Om Engineering, the C&F agent in Ranchi was linked to drip manufacturers in Maharashtra to ensure better quality products. New dealers were established in Ranchi and Purulia to ensure easy availability of AMIT.

3.1 Promotional tools and techniques

IDE revised its handbills, banners and boards, and included appropriate messages to add local appeal. These promotional materials were used in large numbers during live demonstrations and village camps. They were also provided to the dealers for promoting AMIT. New promotional methods such as farmer's exposure camps and overnight village camps for IDE staff were also organized.

α **Handbills**	Printed in both Hindi and in Bengali. Contents were revised and photographs of orchards and chilly were added to encourage adopters to install AMIT in these crops. Distributed indirectly through the dealers in Ranchi, Purulia and Chaibasa and directly during live demonstrations, short jeep campaigns, village camps, exhibitions and fairs.
α **Banners**	These were displayed during jeep campaigns, exhibitions and fairs
α **Display boards**	Depicted details of different types of kits. They were provided to the dealers in Ranchi and Purulia.
α **Short jeep campaigns**	One-day jeep campaigns with AMIT banners and loudspeaker announcements in important village clusters. Five jeep campaigns were held between March-May.
α **Live demonstrations**	A regular feature of the marketing strategy during the current year. Live demonstrations were conducted during mobile campaigns and during IDE staff visits to villages. They were very successful and some farmers paid an advance on the spot and to book AMIT. Approximately 100-120 live demonstrations were held between Jan-May in Purulia and Ranchi.
α **Farmer exposure**	These were organised in new villages in Purulia for promoting

trips individual sales. IDE took 15-20 interested farmers to a successful AMIT farmer's plot where they interacted and clarified their doubts. Eight exposure trips were held in Purulia between March-May.

α **Village camps** These camps were held in Purulia. The AMIT team camped for 2-3 days in a village, conducted demonstrations, played promotional cassettes and distributed pamphlets amongst the farmers. People from neighbouring villages also came to see demonstrations. Five such camps were held between April-May.

3.2 AMIT sales during the year

IDE sold 345 AMIT kits during the current year in the three states of West Bengal, Jharkhand and Chhatisgarh. Of these 130 were sold directly to individual farmers and 215 were sold through NGOs (Table 2). West Bengal was the main focus for individual sales, with 75 out of the 130 individual kits sold here. Nearly all the NGO sales were through the Bhuimikanya Federation of SRI for installation in SRI promoted Regional Resource Centres in different parts of Jharkhand and Bihar.

Table 2

AMIT sales during the current year

	West Bengal		Jharkhand			Total
Kits sold	**Purulia**	**Bankura**	**Ranchi**	**Chaibasa**	**Chhatisgarh**	
Direct to individual farmers	55	20	10	10	35	130
		New dealer	IDE	Dealer	Treadle pump dealers	
Indirect – to NGOs		~5	195		15	215
			SRI (180) SSD (5) HCT			
Total	**55**	**25**	**205**	**10**	**50**	**345**

SRI = Society for Rural Industrialisation
SSD = Society for Sustainable Development
HCT = Hindalco Charitable Trust

The numbers in Table 2 differ from IDE's report in that the latter includes kits sold in urban areas in Ranchi and Purulia for installations in lawns and kitchen gardens. Also, IDE figures are for total number of kits, whereas the Table figures above are for number of farmers – of whom 3 have purchased more than 1 kit.

Some farmers showed interest in AMIT during the rabi season but purchased the kits only in March-April, in time for the zaid crop. As such, most of the AMIT sales occurred between March-May.

3.3 Supply chain

Component suppliers

In 2001 IDE identified Pioneer Plastics Works in Calcutta as the AMIT manufacturer in East India and linked it to Om Engineering, the C&F agent in Ranchi. However, the association did not work out due to internal problems in Pioneer Plastics and the need for a new manufacturer arose. IDE conducted several surveys and identified three alternative manufacturers for supplying AMIT components to Om Engineering:

Pragati Irrigation in Nasik was selected for supplying the main components such as mains, sub-mains and laterals. It was selected for the superior quality of its products. Representatives from Om Engineering went to Pragati Irrigation and verified the quality of products before selecting it. However, Pragati Irrigation could not supply small consignments of special pegs and filters for AMIT and Telecom Plastics in Bangalore, which was already manufacturing these items, was selected for pegs and filters. Concord Sprinklers and Sprayers in Amritsar was selected to supply special nozzles for sprinklers.

C&F agent (Assembler) and Local Dealers

Once manufacturers were selected, IDE encouraged Om Engineering to handle procurement, inventory management, packaging, assembly, after sale service and warranty claim independently. With less involvement in these functions compared to the previous years, IDE staff were able to focus more on promotional activities for market development. Om Engineering responded well and took advantage of the treadle pump supply chain for promoting AMIT sales which extended AMIT sales into the new state of Chhatisgarh.

Internal problems in Farmer's Friend, the old AMIT dealer in Ranchi, reduced its effectiveness in promoting AMIT and IDE identified Goel Machinery as the new AMIT dealer in Ranchi. Om Engineering itself opened a new showroom in Ranchi for various products and sold AMIT directly from here.

IDE identified K.C Pal and Sons, a reputed agricultural store, as the AMIT dealer in Purulia. This dealer sold more than 75 kits during the current year and views AMIT as a profitable future business proposition. K.C. Pal views AMIT as the technology which would not only provide direct revenue, but would also contribute indirectly by influencing the off take of seeds, fertilizers and other agricultural inputs.

3.4 Type of kit sold and cost

During the year, four types of kits were sold: home kit, garden kit, customised kit and micro sprinklers (Table 3).

Table 3

Type of kit sold

	Direct to farmers					To NGOs				
Type of kit	**Ranchi& Chaibasa**	**Chatt-isgarh**	**Purulia & Bankura**	**Total (no)**	**%**	**Ranchi& Chaibasa**	**Chatt-isgarh**	**Purulia & Bankura**	**Total (no)**	**%**
Home kit	7	5	46	58	**83**		15	5	20	**17**
Garden kit	5		15	20	**57**	15			15	**43**
Customised kit		25	8	33	**15**	180	5		185	**85**
GK with tank			4	4	**100**					
Sprinkler	8		2	10	**100**					

Home kits = bucket kits
Garden kits = drum kits
Customised kits = kits covering plot sizes different from those covered by home and garden kits. Used mainly with buckets during the zaid season

Customised tanks kits (4) and sprinklers (10) were purchased only by individual farmers. This was because they were promoted individually amongst farmers who had already succeeded with AMIT.

Eighty three percent of home kits were purchased by individual farmers who were approached directly for AMIT sale. Those who wanted to try AMIT for the first time preferred to purchase home kits as it involved less investment, less risk and yet provided farmers the opportunity to use the technology.

Garden kits were purchased by both - individuals during direct sales (57%) and NGOs through bulk sales (43%). NGOs together purchased a majority (85%) of the customised kits out of which SRI alone purchased more than 95% of the kits. SRI wanted to introduce biodynamic gardening and needed to test the effectiveness of customised kits for irrigating these plots.

α **Customised kits** Out of the 345 kits sold, 218 were customised kits. However one hundred and eighty of them were sold to SRI alone. Eight were sold to individuals in Purulia and the remaining were mostly sold in Chhatisgarh.

Customised kits provided the option of purchasing laterals depending upon the size of the plot which helped the customer to adjust AMIT to the homestead space available for cropping. The cost of the customised kits depended on the number of laterals purchased by the adopter and usually ranged between Rs 500-800.

α **Home kits** Though the sales volume is highest for the customised kits, home kits were most popular AMIT kits. Seventy-eight home kits were sold. IDE's promotional efforts in Purulia generated the maximum off take for home kits and these accounted for 39 out of the 55 AMIT kits sold in this district.

First time AMIT users preferred purchasing home kits as it was priced low – between Rs 225-275 depending on whether a bucket was included - and the risk of loss in case of the failure was less.

α **Garden kit** Thirty-five farmers adopted the garden kit. However, only 8 farmers actually paid for the kits. The remaining 27 kits were purchased by NGOs in bulk orders and were provided to farmers free of cost on experimental basis.

The relatively high cost and thus the higher risk, the additional cost and the difficulty in arranging for a drum were some of the reasons which deterred individual farmers from adopting the garden kit immediately.

α **Tank kits** Four farmers constructed a concrete tank (~1000-1,500 litre) on a 4 feet high platform and connected AMIT laterals to it. Out of these four, three had started AMIT with home kits and decided to invest in a tank after initial success. Though the investment in a tank was high (between Rs 2,500-3,000) it saved labour, saved irrigation time and enabled regular irrigation with least effort.

α **Sprinklers** Ten farmers purchased sprinklers out of which two were in Purulia. Both the Purulia farmers had adopted AMIT earlier and purchased sprinklers only after they were convinced about micro irrigation. As the sprinklers had to be connected to pressure pumps for irrigation only farmers who already had such pumps initially purchased these.

3.5 The selling process

3.5.1 Payment terms

NGOs paid IDE directly for bulk AMIT purchases. For individual sales, IDE staff facilitated the selling process by collecting payments on behalf of the dealer during their interaction with the customers.

Table 4
Cost of AMIT

Type of kit	Cost (Rs)
Home kit	225-275
Garden kit	750-975
Customised kit	500-800
GK with tank	2,000-3,000
Sprinkler	400-600

No subsidies were given. In some cases customers were allowed to pay in 2-3 instalments. The amount of instalment and the repayment duration was not fixed and depended on the IDE staff's assessment. However, full payment for all kits was ensured during the season.

3.5.2 Ordering and receiving kits

SRI Ranchi informed new NGOs partners about AMIT. AMIT stalls set up in exhibitions and fairs also generated awareness about the technology. The institutions interested in AMIT contacted IDE directly and placed orders. IDE facilitated the selling process between the NGO and the dealer.

For promoting individual sales the IDE staff usually carried a few kits with them while moving to different villages in Purulia. Anyone who wanted to purchase AMIT had three options. They could

- make full/part payment on the spot and collect the kit from the IDE staff. In case of part payment, the balance was collected during follow up visits
- book a kit by paying an advance. The IDE staff would deliver the kit to the farmer and collect the remaining balance during the next visit to the village usually within a week.
- collect references from IDE and purchase the kit directly from the dealer in Purulia

3.5.3 Kit installation and after sales

In cases of bulk sales, the NGOs selected the beneficiaries and supervised kit installation. They also provided IDE with a list of the selected farmers. IDE staff followed up on the bulk sales 2-3 times during the season and advised the farmers and the NGO staff on proper use of AMIT.

IDE staff helped individual adopters install the kits wherever possible. The after sale follow up service for these farmers was more intense as the IDE staff combined these visits with those for promoting AMIT in the same village. Thus, farmers got quick assistance which sustained their motivation throughout the season. Several after sale visits also enabled neighbours to find out more about AMIT and clarify their doubts about the technology directly with the IDE staff. This increased the awareness level in the villages and IDE was usually able to identify more customers during the season in the same village. Numerous adopters from the same village helped in the follow up process by saving time.

4 Innovations to promote AMIT

IDE tried several new innovations during the season to enhance AMIT sales in the Eastern region. These innovations were related to two main areas - modifications in the product and new marketing initiatives.

4.1 Modifications in the product

The product modifications aimed to solve some of the technical problems encountered in the previous years and increase the AMIT market through new product concepts.

4.1.1 Nut and washer system to control leakage

Water leakage from the junction of the tap connecting the water container and the main PVC pipe of the AMIT kit, was one of the main problems in the previous AMIT seasons. IDE has designed a non-corrosive plastic nut and washer system to solve this problem. When used in the junction between the tap and the container the new system prevents water from trickling out. Field test of this method has yielded positive result and IDE plans to supply this system with all AMIT kits in the future.

4.1.2 Bend to prevent damage to main

Another source of water leakage, detected during the previous seasons, was in the main pipe itself, where it connected directly to the tap. The angle of the connection sometimes damaged the main pipe and led to water leakage. In the new design this pipe is connected to the tap through a bend which prevents it from awkward folds. This bend has been provided with some AMIT kits in Purulia and has successfully prevented water leakage.

4.1.3 Tank kit

The limited capacity of the bucket kit (20-30 litres) and the drum kit (200-250 litres) required AMIT adopters to fetch water and fill the containers several times during the day. Adopters viewed the constant involvement and the effort as a major limitation of drip irrigation. Moreover, several farmers who wanted to increase the AMIT area were constrained by the absence of a storing device for water. In order to reduce the labour and enable farmers to irrigate a larger area with AMIT, IDE encouraged farmers to construct a small concrete tank (~1,000-1,500 litre) about four feet from the ground and connect the AMIT laterals to this.

The cost of such a concrete tank including laterals to cover an area of 0.03-0.04 acre is between Rs2-3,000. The tank can be filled manually or with a pump. Once full, the tank can supply water for 3-5 days for the area mentioned above. In some Purulia villages, the risk of theft of drums and buckets are high if installed in plots far from home. However, the tank kit enabled the farmers select the best plot for AMIT, slightly far from the home but nearer to a water source and having good soil quality. The concrete tank has also saved farmers the trouble of seeking a 200 litre capacity drum which is difficult to obtain in some areas. Moreover, during the peak summer when farmers have to provide more irrigation, the tank kit can easily irrigate more without fetching water every time.

Four farmers installed the tank kit during the current season. These helped the adopters obtain greater financial returns from the AMIT plot and also saved labour and irrigation time. Five more AMIT farmers have been motivated by the success of the initial tank kit adopters and they plan to construct a tank for the next AMIT season.

4.2 Marketing initiatives

4.2.1 Network marketing

In order to boost AMIT sales, IDE introduced network marketing in Purulia and Ranchi. In this system, any AMIT customer who generated additional orders for kits, qualified for a commission for his service. The commission for a home kit was around Rs30-40 and for a garden kit it was Rs75-100.

The incentives encouraged existing AMIT adopters to convince neighbours, friends and relatives from the same village and other villages to purchase AMIT. In Purulia, about 25 kits were sold through this method. Apart from additional sales this approach produced some indirect benefits as well.

Prospective customers often took the decision to purchase AMIT only after seeing AMIT performance in the field. Therefore existing adopters took additional efforts to ensure good demonstration which could convince others. Constant supervision of the AMIT crop and regular irrigation according to recommendations led to good performance.

AMIT crop performance was often compared to the results of traditional irrigation systems. Existing adopters highlighted the benefits while discussing AMIT with others. Constant reference to the benefits from the technology made the advantages perceptible to everyone.

As a result of network marketing most villages had between 3-5 AMIT users. Even if the AMIT crop failed for one farmer, the success of the others convinced the community about the utility of the technology. Thus unlike in the previous years, crop failures was regarded more as a natural event and they did not affect AMIT's popularity.

IDE encouraged existing farmers to receive the network marketing incentives in kind in the form of additional laterals for irrigating more area. This helped farmers increase the area under drip irrigation

4.2.2 New AMIT package

In the previous seasons, drum kits (only laterals) were supplied in cardboard boxes and bucket kits were supplied in polythene bags. However, the farmers soon disposed these packages. In order to provide more value to the customer IDE designed jute carry bags for bucket kits which were strong and durable and could be used for carrying a variety of items. The bags have AMIT details printed on both sides which help in AMIT promotion whenever the adopter uses the bag. The bags have already become quite popular and IDE had several queries asking whether the bag alone was for sale. Though drum kits are still delivered in cardboard boxes, a similar package is planned for them as well in future.

5 AMIT adopters

By July 2002, the AMIT programme completed three years in East India, during which farmers have used the kit in three zaid seasons and two rabi seasons. A total of 135 farmers adopted AMIT in Ranchi, Purulia and Jamshedpur during this period. For the current year EDA visited 94 of them out of whom 44 purchased AMIT during the current zaid and rabi seasons. The remaining 50 were AMIT adopters from previous seasons (Table 6).

Table 5

AMIT farmers – Ranchi, Purulia and Jamshedpur

When AMIT was adopted		Total	Adopters Interviewed in current year (2001-02)	AMIT users in last	
Year	**Season**			**Rabi**	**Zaid**
2000-01	*Zaid*	16	5	3	1
	Rabi	24	19	1	1
2001-02	*Zaid*	40	26	9	21
	Rabi	8	6	7	1
2002	*Zaid*	47	38		38
Total		**135**	**94**	**20**	**62**

Of the ninety four farmers interviewed, sixty two installed AMIT during the zaid season. Out of them 38 were new AMIT customers and 24 were repeat AMIT users from previous seasons. Out of these 24 repeat AMIT users in the zaid season, only one was a current rabi season adopter and the remaining 23 were adopters from previous season. They had skipped the rabi season deliberately as they wanted to install AMIT only in zaid when they felt drip irrigation provided maximum benefits.

The number of AMIT users shows a slight increase during the summer season and reduction during the rabi season. The zaid season is preferred as water scarcity is more during this period and the technology has greater utility, enabling families to cultivate fallow land and earn more. Moreover, farmers have more free time during zaid which they could devote to AMIT. In contrast, in the rabi season, there is usually sufficient water for irrigating the AMIT plots with traditional irrigation methods. Moreover farmers have enough work in their field and the time to innovate and experiment with AMIT is less. However, some motivated adopters, such as Deblal Hasda in Purulia, found time for AMIT even during the rabi season and cultivated crops successfully.

Out of the 94 farmers surveyed, 40 obtained AMIT through NGOs and 54 purchased them direct from IDE. Most of the NGO adopters (35) were surveyed in Ranchi and Jamshedpur and a majority of the individual farmers (53) were from Purulia (Table 7).

Table 6

Adopting through NGO and through direct sale

District	Adoption through NGO	Direct sale
Ranchi	19	1
Jamshedpur	16	0
Purulia	5	53
Total	40	54

5.1 Users and dropouts

Three farmers have used AMIT continuously since 2000-01 (Table 8). They have used drip during rabi and during zaid. The only farmer who has continued since the first season has expanded his area under AMIT and also diversified into sprinkler.

Table 7

AMIT use and drop outs

Season of adoption		AMIT use – number of seasons					Adopters	Drop-outs
		5	**4**	**3**	**2**	**1**		
2000-01	*Zaid*	1	1	1	2	11	**16**	**14**
	Rabi		1		12	11	**24**	**23**
2001-02	*Zaid*			1	28	11	**40**	**11**
	Rabi				1	6	**7**	
2002	*Zaid*					38	**38**	
	Total	**1**	**2**	**2**	**43**	**77**	**125**	**48**

Source: EDA field interviews. (~ 92% of total adopters in the area)

Farmers are using AMIT primarily for the summer crop. Thus, of the 28 farmers who adopted AMIT in zaid 2001, 20 skipped the rabi season to instal AMIT again a year later in zaid 2002. Though there are, similar instances of farmers skipping the summer season, they are far less in number and occurred mainly due to involvement in other activities. In the Table, only farmers who miss a summer and a rabi season consecutively are included as drop outs.

5.2 Drop outs

The reasons for high initial dropouts were discussed in the last season report.

Dropouts from last year represent just over one fourth of adopters. The reasons for drop out were almost similar to those in the previous seasons. Three of them have been busy in other activities related to the local panchayat and has not been able to devote time to AMIT. Five farmers have dropped out as their source of water is very far. Three more gave up on AMIT after they lost their crop due to seed failure and goat damage.

The ~25% dropout rate in the last year is an improvement over the much higher drop out percentages in the previous years. The improvement has resulted out of better adopter motivation levels through interaction with successful AMIT adopter in the regions. Greater interest in using the technology according to recommendations, protecting the crop and the introduction of a range of AMIT products from which the adopter could choose the one most appropriate one has also encouraged adopters. Most important of all, even when AMIT has not produced a surplus for sale in the market, farmers have at least obtained some production for consumption which has encouraged them to carry on with the technology.

5.3 Socio economic category

In the first AMIT season in zaid 2000 detailed household economic surveys were conducted to determine the wealth rank of the adopters. In the subsequent seasons too, we estimated wealth rank categories of new adopters. However. These were broad estimations based on personal interviews with the adopter and discussion with IDE field staff and neighbours of AMIT farmers. The main criteria used remain, government service, other sources of income, family members, the duration of consumption of production from own land and asset quality such as quality of house.

Out of the 38 kits sold directly to individuals 21 belonged to the surplus and the self-sufficient category and 17 were deficit farmers. There were no D3 individual AMIT customers during zaid. However, out of the 62 kits which were installed in the zaid season, 13 farmers belonged to the D3 category (Table 9).

Table 8

Socio-economic categories of AMIT farmers in zaid 2002

Economic category	New zaid customers	Zaid installations
Surplus	6	8
Self-sufficient	15	23
Deficit 1	14	15
Deficit 2	3	3
Deficit 3		13
Total	**38**	**62**

Majority of the AMIT kits sold through IDE promotional campaigns were purchased by top three farmer categories. While the surplus and the self-sufficient farmers purchased home kits, garden kits and invested in tank kits, D1 category adopters preferred only the home kit. As investment in the kit is related to the risk taking capacity of the farmers, it is evident that the first two categories are capable of taking greater risks compared to the D1 farmers.

Though no D3 farmers and only a few D2 were reached directly by the market oriented approach, AMIT promotion by NGOs such as SRI in Ranchi, BSS in Jamshedpur and Kalyan KVK in Purulia enabled AMIT to reach the D2 and the D3 category farmers in adequate numbers. The NGOs selected the farmers based on their interest and usually provided them home kits on full subsidy.

The results of these deficit category farmers in Bediapara in Purulia, which is new settlement of snake charmers, reveal that all five adopters have persisted with AMIT and used it for the second year during the current season. Similarly, in Sabarnagar village in Jamshedpur, which is inhabited by a hunting tribe, 8 out of 10 adopters have persisted with AMIT. However, in the Tati village in Ranchi, 9 out of the 10 deficit farmers stopped using AMIT after the first season due to difficulty in fetching water from long distances. The AMIT production was used only for consumption but it motivated the farmers enough for persistent use.

Though the D3 farmers perceived benefits and persisted with the technology, they are still not eager to invest their own funds in increasing the area under AMIT. Otherwise, they are keen to increase the area and feel this would enable them to earn revenue from producing and selling the surplus.

6. Type of kit

In the zaid season 59 farmers installed only one kit and three farmers installed two kits each, taking the total number of kits installed in the season to 65. Out of these 34 were home kits, 16 drum kits and 9 were customised kits (Table 10).

Table 9

Type of kits installed

Season of adoption		Drum/Garden	Bucket/home	Customised	Sprinkler	Tank kits	Total
2000-01	*Zaid*	1					**1**
	Rabi			1			**1**
2001-02	*Zaid*	12	9				**21**
	Rabi		1				**1**
2002	*Zaid*	3	24	8	2	4	**41**
	Total	16	34	9	2	4	**65**

Evident popularity of the home kit is mainly on account of less investment and greater convenience for understanding of the AMIT technology. Three farmers, after successfully using the home kit, purchased additional home kits, customised kits and sprinklers during the zaid season to increase the area under drip. Three more home kit users even invested in tanks for increasing the area under AMIT even though the investment was reasonably high.

As the home kits and customised AMIT are easy to use and could be operated by women and children, several D3 families were able to grow some vegetables using the technology while the men went out for months, either begging or in search of some work. Similarly, the simplicity of the technology enabled self-sufficient families to assume joint responsibility for irrigating using AMIT.

More than 75% of the farmers used wells for their AMIT plot (Table 10)

Table 10
Different sources of water (summer 2002)

	Tubewell	Well	Pond	River	Total
Surplus		8			8
Self-sufficient		21	2		23
Deficit 1		10	4	1	15
Deficit 2		1	1	1	3
Deficit 3	5	8			13
Total	5	52	7	2	

The D2 and the D3 category farmers did not own any water resource and had to fetch water from the common village water resources. The five D3 farmers in Purulia used common tubewells sank by the panchayat and the eight D3 farmers in Jamshedpur used common wells provided by BSS. The 3 D2 farmers used a common well, a common pond and a river

respectively. As the community often did not allow the use of water from common resources especially during summer months, this was a one of the constraint for AMIT adoption by the D2 and D3 farmers.

The surplus, self sufficient and half of the D1 well users owned their own water resources and used these for AMIT. The quality of the water resources for the surplus and the self sufficient was usually better in terms of their depth, water availability and construction. However, as AMIT needed only a small quantity of water, home kits could be still be easily installed even when the water level in the wells reduced drastically.

7 Location of AMIT plot and water sources

As in previous years, AMIT was mainly used on homestead plots for reasons of convenience, involvement of the entire family in irrigation, and security. Homestead location helped in the demonstration effect of successful AMIT crops. Neighbours, relatives and outsiders could easily visit the plots and observe AMIT in use. Location is effectively determined by the water source. The majority of AMIT users used wells close to the AMIT plot. Regular use of well water for household chores was combined with filling the bucket ensuring regular irrigation.

Homestead location near wells was preferred for all the three types of AMIT kits. The home kits, which covered a small area, provided the greatest flexibility, as they could be located very close to the wells. The plots for garden kits and customised kits were sometimes relatively farther from the well though usually within a distance of 20 feet from the well. There were no specific products for field installations and it mainly depended on the availability of suitable plots and water resources.

Where water for AMIT was obtained from tubewells (5 bucket kits in Purulia) or ponds (2 kits in Purulia), the distance to the water source ranged from 50-100 feet. As a result the farmers had to put in more effort to irrigate AMIT plots from these sources.

8 AMIT crops

Cucurbits were the most favoured crop during the current zaid season. (Table 11)

Table 11
Crop planted

AMIT crop	Home kit	Garden kit	Customised kit	Sprinkler	Total
Cucurbits	21	4	9		**35**
Mixed Cucurbits	6		1		7
Bitter gourd	10	3	7		20
Pumpkin	1		1		2
Ridge gourd	2	1			3
Bottle gourd	2				2
Cucumber	1				1
Brinjal	1	10			**11**
Lady's finger	2	1		1	**4**
Leafy vegetables	1		2	1	**4**
Mixed crop	2		1		**3**
Chilli	1	1			**2**
French Bean	1		1		**2**
Nursery (forest plants)	1				**1**
Total	**31**	**16**	**13**	**2**	**62**
Cultivated without AMIT – last year	6	1	4		**11**
Additional plots with AMIT	**25**	**15**	**9**	**2**	**51**

AMIT adopters chose cucurbits because their production continues even after the zaid season thus increasing the returns from the AMIT plot. Cucurbits are highly appropriate for home kits: they have trailing habits and when supported on bamboo structures, the yield per plant is high. Thus the overall production from a relatively small area can be substantial. Nine farmers who wanted to cover a slightly larger area or whose plot size was larger used the customised kit for growing cucurbits.

Bitter gourd is especially popular since it fetches a good price in the local markets (Rs8-10 per kilogram) with less fluctuation in the market rate compared to the other crops (example – tomato rates reduced from Rs 10 per kilogram at the beginning of the season to Rs 5 per kilogram towards the end). Farmers are familiar with bitter gourd cultivation practices which reduces the risk of failure as they do not have to learn the agronomic practices for a new crop.

Some farmers purchased AMIT and planted bitter gourd early in zaid had a healthy crop relatively early – and this had a demonstration effect. Those who purchased AMIT after observing these successful bitter gourd crops wanted to try the technology for the same crop.

With the garden kit, brinjal was the most favoured crop.

Out of the 62 farmers who installed AMIT during the current zaid season, 11 had cultivated the same AMIT plot in the previous year as well without AMIT. They lifted water from wells using rope and bucket and emptied it in furrows which irrigated individual plants through field channels. As a substantial quantity of water was lost in the process, the farmers had to spend extra effort lifting more water. Secondly, the field channels failed to carry the water equally to all the plants. Thus the yield from the plants was not uniform and overall production was less.

Seven out of these 11 farmers who cultivated the AMIT plot last year, grew the same crop this year as well in the same plot using AMIT. Their results show that the production from the same plot using AMIT was 20-50% higher than the production last year (for a typical farmer in the village) without AMIT. For example Haladhar Mahato, a successful tank kit user was able to harvest his crop ~35 times (Annex Table 2) and obtained 450 kilograms of production from 0.03 acres. The general experience in the village is an yield of ~250 kilograms from the same size of plot in the zaid season.

The study revealed that AMIT was able to prolong the productive life of the crop as well. For example Haladhar was able to harvested the AMIT crop ~35 times within a duration of two months. The general experience of harvesting bitter gourd in the village is only 25-30 from the same plot size.

Moreover, the average yield/harvest for Haladhar was ~13 kilograms compared to the ordinary yield of ~8 kilograms from non AMIT plots during the zaid season, showing ~50-20% higher yield per harvest from AMIT.

They attributed this increase to the more scientific irrigation practice using AMIT where the ground remained wet throughout the season.

Fifty one out of 62 plots would have remained fallow without AMIT. These included the AMIT plot of some of the repeat farmers who had installed AMIT in different plots in the previous zaid season. Thus AMIT not only enabled the cultivation of 51 plots but also ensured that 40 of these had some production at least for consumption. Any yield from these plots was an addition to the livelihood of the adopter families due to AMIT.

9 AMIT results

Two thirds of the AMIT farmers were successful during the summer season. Nineteen earned revenue from selling surplus production from the AMIT plot. Twenty-two adopters obtained production for consumption and though they were not able to sell any surplus, they still perceived success (Table 12).

Seven farmers obtained some production from the AMIT plot, just enough for consumption for 3-4 weeks, and they attributed it partially to AMIT. The AMIT crop failed for eleven farmers but they were convinced about the technology and want to try AMIT again in the next season. Only one farmer is discouraged after crop failure and does not want to use AMIT any longer. Three farmers had installed AMIT very late in the season and though they are able to perceive benefits from the technology they were not able to comment conclusively on the economic benefits as they had not obtained returns till the time of the field visit.

Table 12

AMIT result in zaid

Level of success in using AMIT	Home kit	Garden kit	Customized kit	Sprinkler	Total
Successful					
Revenue from surplus sale	13	3	3		19
AMIT production used for consumption – perceived success	14		6	2	22
					41
Partially successful					
Some yield partly due to AMIT	2	3	1		**6**
Unsuccessful					
No yield but wants to try again	1	10			11
Not convinced			1		1
					12
Incomplete crop	1		2		**3**
Total	**31**	**16**	**13**	**2**	**62**

Comparing the different AMIT products he home kit was most successful. Twenty seven out of the 31 home kit users are in the successful category showing the success of these kits during the current season. The short distances between the AMIT plot, water source and the adopters home, ensured constant supervision and regular irrigation throughout the crop. It ensured family participation and joint responsibility for the AMIT crop. The home kit is used in very small patches of land requiring low effort and maintenance. Thirteen farmers sold produce in addition to use for home consumption.

Most adopters installed AMIT in fenced homestead plots protected the crop from livestock and poultry damage and helped in AMIT success. Secondly, the AMIT farmers who were successful this year mainly had joint families. As a result even when the men went out for wage labour, women and the children supervise and irrigated the AMIT plot.

The experience with the garden kit was less successful. Out of the 10 farmers who did not obtain any yield, one Ranchi and one Purulia farmer faced seed failure. The unsuccessful drum kits were mainly in Jamshedpur where farmers could not provide regular attention as they were involved in other activities.

The customised kit figure in the table includes the tank kits. The successful customised were mainly in Purulia and were used to cover plot sizes between 0.01-0.03 acres and their location was almost similar to the home kits – almost adjoining the wells. Constant attention to the new method of farming, motivation from success of the neighbours, well protected plots and choice of a crop with less chances of failure contributed to the success of the customised kits.

The sprinklers which were introduced for the first time during the current season in Purulia also performed well. Though none of the kits were able to yield surplus for sale, because the water source dried up before the peak harvest period, they still generated production for consumption.

The results of the current year demonstrates that the home kit is a good beginning for the farmers. However the considerable success of the other kits demonstrates their potential to succeed as well.

There was no significant difference in the performance of the new farmers compared to the repeat farmers specially in terms of their comfort in using the technology. This was because the technology was simple to understand and easy to use and more experience did not provide additional advantages. However, in some of the villages in Purulia, new farmers were motivated to adopt the technology after observing its performance for last year adopters.

The market prices for the crops which were grown remained steady throughout the season and the families were able to earn good returns from selling the surplus which motivated them further. Even those who produced little surplus obtained good prices. The availability of a local market for the AMIT vegetables , within 2-4 kilometres, avoided any transportation costs.

Though it is scientifically established that AMIT uses less water, when the farmers perceived this first hand in their plots it increased their enthusiasm for the technology. According to one estimate provided by Krishnapada Majhi from Jahajpur village in Purulia, to irrigate an area of 0.01 acre earlier he had to lift and empty 8-10 buckets of water two times a day during peak summer. However, with AMIT he needed to lift only two buckets, three times a day. Once the message of irrigation with less water and less labour was clear to all family members everyone shared the responsibility of regular irrigation.

Apart from saving labour, AMIT also saved the time and the effort of mending field channels. Once the laterals are laid out at the beginning of the season, they required little supervision for the rest of the season. The problem of clogging, which was experienced during some of the earlier seasons, was not reported during the current season. This was partly because the farmers had learnt to use the filters well and used clean water for irrigation. Similarly, water leakage problems were few.

AMIT proved very suitable especially for cucurbits which are trailed on bamboo supports. The luxuriant growth of the plants during the peak growth season, filled the plot and made movement within the plot almost impossible. During this time it would have been very difficult to maintain irrigation channels within the area without damaging the plants. However, the AMIT laterals ensured that irrigation was done without entering the plots or damaging the plants. Murari Mahato, one of the five best farmers found this one of the greatest advantages of AMIT.

Whenever home kit users (from any category) experienced the benefits of AMIT they showed interest in increasing the area. However, the surplus and the self-sufficient were more agile and three farmers from this category invested in the tank kit during the zaid season itself. A few others from these categories purchased additional laterals to increase the area under cultivation during zaid itself. On the other hand, deficit farmers have who showed interest in tank kits are likely to invest in them only in the next season.

Out of the 19 adopters who were able to sell their produce for a surplus, 15 belonged to the surplus and the self sufficient categories. This experience and the experiences from the past seasons show that the market oriented process of AMIT diffusion first affects the livelihood of the surplus and the self-sufficient categories. As these categories are more focussed on earning revenue from selling surplus from AMIT plot, they are able to increase the area under

drip faster. However, once the deficit category farmers perceive benefits from AMIT, they are also likely to expand the scale, but at a slower rate due to their limited investment capacity and risk bearing ability. In fact, the deficits are at times quite happy with prolonged production for consumption from the AMIT plot.

The greater agility of the surplus and self-sufficient farmers in increasing the area under AMIT is related to their better access to funds for additional investments compared to the deficit 1 farmers have to generate the additional funds by selling the farm output or through wage labour. The self-sufficient and the surplus on the other hand already have funds available either through prior sale of crop or through flow of funds from regular income sources.

The eagerness to invest also depended on the risk taking capabilities of the two categories. While the surplus and the self-sufficient made additional investments with the aim of higher returns during the season itself, the deficit were worried about loosing their additional investment if the crop failed.

10 Returns from AMIT

The returns from the AMIT plot for the 5 best farmers show that AMIT can help generate good revenue and enable adopters recover their entire investment within a few seasons (Table 13). The financial and the technical benefits led some farmers, like Deblal Hasda, Sakya Singha and Puran Munda from the early AMIT seasons, to persist with the technology even in the absence of any successful demonstrations other than their own.

Haladhar Mahato from Doom Doomi village in Purulia was the most successful AMIT adopter during the zaid season growing bitter gourd with a tank kit. The total value of his produce from the 0.03 acre AMIT plot was Rs 3,600 and his profit per decimal was Rs 717 (Annex Table 2). His total investment including the tank construction cost was ~Rs 2,900 and the net return of Rs 2,152 helped him recover almost 75% of his investment in the first season. He is encouraged by his success and plans to treble the AMIT area in the coming season.

The quality of the AMIT output was superior in some cases which helped adopters get a slightly better rate. For example Haladhar Mahato sold a large part of his bitter gourd production for Rs12/kilogram when the ongoing rate for bitter gourd was Rs10/kilogram. The quality was ensured through by avoiding weeds, pest, insect attack and through good inputs. At the time of sowing Haladhar used 30 kilogram of FYM and also applied DAP to the crop in various stages. Cultivation advise from one of his friends, a local agriculture development assistant, also helped him in his efforts. Moreover, IDE too supplied him with liquid fertilizer which yielded good results. In the coming seasons, IDE plans to provide this liquid fertiliser to more farmers.

The second most successful farmer was Bhagirath Mahato, from Jahajpur village in Purulia, who installed AMIT in mixed cucurbits and obtained production of Rs 800 using a home kit (Annex Table 3). His investment was Rs 275 and the net return of Rs 649 helped him fully recover his investment.

Table 13

Five best AMIT performances

Rank	Adopter	Village	AMIT kit	Area	Crop	Profit per decimal (Rs)
1	**Haladhar Mahato**	Doom Doomi	Tank kit	0.03	Bitter Gourd	**717**
2	**Bhagirath Mahato**	Jahajpur	Home kit	0.01	Mixed cucurbits	**649**
3	**Murari Mahato**	Gondhudi	Garden kit	0.03	Bitter gourd, ridge gourd	**623**
4	**Sudhir Mahato**	Bongabari	Home kit	0.01	Bitter gourd, cucumber	**503**
5	**Gaur Bauri**	Namu Khonnadi	Home kit	0.01	Pumpkin	**406**

Murari Mahato from Gondhudi village in Purulia was the third most successful AMIT farmer with a return per decimal of Rs 623. He grew a mixture of bitter gourd and ridge gourd and his total net earning of Rs 1,868 fully recovered his investment of Rs 1,150

Farmers felt that the use of local seeds also helped them succeed. They were already familiar with the cultivation practices and agronomic requirements of the crop beforehand.

The five best performances, which include three self-sufficient farmers and two D1 category farmers, demonstrate that AMIT could provide reasonable financial returns to all farmer categories. The baseline data for a typical self-sufficient farmer in Purulia shows annual cash income of ~ Rs 23,000. The average net income of Rs 1,507 from AMIT for the three self-sufficient farmers is around 7% of the total cash income for self-sufficient families. Similarly the average net income of Rs 527 for the two deficit category families is about 5% of the total annual cash income of ~ Rs 13,000 for a typical deficit category farmer. The self-sufficient farmers were keen on re investing the returns from AMIT for increasing the area under drip immediately. However, the deficit farmers preferred to use the additional returns for meeting consumption needs for the family.

11 Long term AMIT farmers

The baseline information of the first 20 AMIT adopters in zaid 2000 show that 5 were deficit category farmers, 6 were self sufficient and 9 were surplus. One of them, Deblal Hasda, a surplus farmer has persisted with AMIT for all the five seasons. Similarly two farmers who installed AMIT for 4 seasons were both self-sufficient. All the deficit farmers who adopted AMIT in the first two seasons had dropped out by the end of the current zaid season. These results show that the relatively better off farmers are more likely to persist with AMIT even if they occasionally face crop failure. However, the numbers are too small to draw any conclusive judgement on this aspect.

Deblal Hasda, from Bahukata village in Purulia, has used AMIT continuously for all five seasons – despite crop failure in two of the seasons due to poor seeds. He has nearly doubled the area under AMIT from 0.03 acres in the first zaid to almost 0.06 decimals during the zaid 2002 season

Deblal has had successful crops in 3 seasons. Continued use reflects his overall success with AMIT in almost all the seasons. He had paid for a garden kit in full (Rs 1,500) and his

returns from AMIT crops over the years helped him fully recover his investment though his crop failed for two seasons out of the five. His returns from the three seasons when the crop succeeded is Rs 1,661.

In order to irrigate the additional area, he invested Rs 400 in sprinklers and grew leafy vegetables in the new AMIT plot.

In order to enable him to derive the best advantage from AMIT, IDE provided a treadle pump, free of cost, on a experimental basis to lift water for the sprinklers. The use of sprinklers instead of traditional irrigation systems helped Deblal irrigate leafy vegetables even when his well dried rapidly during the summer season. Though the intense summer reduced the vigour of the crop and Deblal did not get surplus production for sale in the market, he feels that even domestic consumption would have been impossible without AMIT.

Sakya Singh from Purulia and Puran Munda from Ranchi used AMIT for four out of the five seasons. Sakya Singha, one of the earliest AMIT adopters a GVT village in Purulia, paid Rs500 for his AMIT drum kit after receiving a subsidy of Rs 1,000. Though he has gradually recovered his investment, he has never been able to get full benefits of AMIT for reasons such as seed failure, hen damage and heavy rains. Moreover, as Sakya was involved in supervising some GVT sponsored forestry and soil and water conservation projects in the village, he had limited time for AMIT which also led to moderate success. Sakya is convinced that the technology can yield very good returns if used properly. He plans to continue his efforts to get good returns from AMIT in future.

Puran Munda from Tati village in Ranchi was one of the SRI beneficiaries for customised kit for biodynamic gardening. He used the kit during all the past four seasons in different types of crops. In the first three seasons he grew vegetable and was able to sell some surplus in the market. In the zaid 2002 season he irrigated tree saplings with AMIT for forest plantations in the future. Puran had received the AMIT kit on full subsidy from SRI. Now, in spite of his success with the technology and eagerness to increase the area under AMIT he is not keen on investing money on additional AMIT kits.

12 Marketing oriented versus subsidy based approach

Though IDE started AMIT promotion using the market oriented approach it had to offer some discounts in the first season to enable farmers to adopt AMIT and complete the numbers for the AMIT research. Ranchi and Purulia were new operational areas and IDE had little time for promotional activities. Gram Vikas Trust[3] (GVT) farmers were approached with reference from the GVT field coordinators. These farmers were used to obtaining subsidies for adopting any new technology from GVT and in such an environment it was difficult to convince the farmers to pay for the technology, though IDE succeeded in making the beneficiaries bear some of the cost.

Though subsidies helped meet the numbers required for the research, it did not ensure good quality adopters. Most of the farmers from the first season lost interest quickly and abandoned AMIT. These subsidies went mostly to self-sufficient farmers, in areas where the AMIT market was likely to expand in the forthcoming seasons. When farmers lost interest,

[3] KRIBHCO was renamed Gram Vikas Trust after it registered as a separate entity in the year 2000

their neighbours too lost interest or they too wanted a subsidy. As a result IDE generated very few future sales in these regions.

In the current year IDE adopted the approach of zero subsidy for direct sales. The marketing efforts were stronger and village to village promotional campaigns were adopted. The field staff directly approached the interested farmers before selling kits. Through this approach only those farmers who really wanted to try the innovation paid for it and acquired the technology. As the non-subsidy message was clear from the beginning the farmers did not demand any financial support for the kit, protection structures or input costs. They also ensured optimum care for the AMIT crop.

Therefore, direct subsidies to achieve targets have not worked for AMIT. It led to wrong selections and affected the future market. On the other hand the market oriented approach enabled the selection of interested farmers who went on to succeed with the technology. Their success encouraged the community as a whole, increased the awareness about AMIT and expanded the AMIT market rapidly.

However, the success of the market oriented approach in the current year also resulted from a prudent range of products which enabled the adopters to choose the kit and the investment which suited them best. An innovative network marketing strategy , more field staff for selling AMIT and for providing after sale services and flexible payment terms for kits purchased also contributed to the success of the market oriented approach.

Establishing dealers in places nearer the site of sales also helped the selling process. For example, Gaur Bauri, one of the successful farmers from the current year, purchased the home kit directly from the dealer in Purulia after he saw one of his neighbours using the kit.

Although the marketing oriented approached helped to achieve relatively higher volumes during the current season, farmers from the higher economic categories purchased most of the kits. The diffusion of AMIT to the D3 category resulted only through subsidies from the promoting NGOs. For example, SRI in Ranchi, Kalyan KVK in Purulia and BSS in Jamshedpur have provided the AMIT kits to the deficit 3 category farmers on full subsidy basis.

In Purulia, the D3 farmers, who are mainly snake charmers, have used the opportunity to meet some of their consumption needs from their own homestead plots. Similarly in Jamshedpur, D3 farmer have benefited from AMIT and have re-used them for 2 seasons. In the absence of NGO intervention, these categories would have found it very difficult to access AMIT as their location is far away from the promotion region of IDE and it would have taken AMIT a longer time to penetrate these villages by itself. Secondly, the purchasing power of the D3 category is very less and it would have been difficult for them to invest in AMIT by themselves.

The successful deficit farmers are keen to increase the area under drip irrigation. However, they want the NGOs to help them again and provide them with subsidies. They are not ready to save up and invest in the kits themselves. On the other hand the successful surplus and self-sufficient farmers who acquired AMIT through the market oriented approach are also eager to expand the area under drip and have re-invested the returns from the current AMIT crop for this purpose.

13 Enabling conditions for AMIT diffusion

AMIT marketing in the East is still in an early stage. In the current year IDE was able to develop clusters of village with numerous AMIT adopters which contributed to the reasonable success of the technology. IDE should continue with this approach and encourage network marketing to enhance the future AMIT diffusion process. It should focus on the other enabling conditions as well while identifying new AMIT clusters.

AMIT is suitable for all areas which face water shortage during the rabi and the zaid seasons. However, in order to generate awareness in a region the market oriented approach, which was adopted for promoting AMIT in Ranchi and Purulia, need elaborate prior planning and substantial human resources. The approach should promote a range of products rather than a single high end product (zaid 2000) and should offer flexibility of payment terms. Network marketing should be introduced from the beginning not only to generate higher sales volumes but also to ensure good demonstrations. There should be adequate supply of AMIT kits to avoid time delay between order and delivery of AMIT kits.

While promoting AMIT in a new area the presence of the enabling conditions should be ensured to the extent possible. For example, the chosen cluster of villages should have felt water scarcity during the rabi and the zaid seasons and the water resources in the villages should be limited. The community should be aware about cultivation practices for vegetables and should have fenced homestead plots available for AMIT. The water source for AMIT should be within 50-100 feet and should not become dry during the AMIT season.

The villages close to the markets should be preferred so that farmers are able to sell their produce easily. The entire family and not just the adopter alone should be convinced about AMIT. This would not only generate more interest in the technology, but would also promote joint responsibility for operating the kits in the homestead plots.

Agronomic guidance is essential for promoting AMIT in any new area. Though farmers might be aware of the cultivation practices, they are often unsure about additional measures for using micro irrigation. Therefore, the details of practices such as mulching should be explained well and farmers should be guided in these activities. Availability of inputs such as liquid fertilisers and growth enhancers suited only for micro irrigation should be ensured.

The aim should be to have as many replications as possible from the first year itself. Instead of geographically isolated adopters, several adopters from the same village should be chosen so that natural crop failure in any one AMIT plot is not attributed to the failure of the technology. While developing the market the focus should be on a cluster of closely located villages instead of widely dispersed villages.

AMIT has a simple design, is easy to use and has several benefits. However, unless the adopters experience these benefits first hand in a new area, they remain unconvinced. Therefore demonstrations should be an integral part of any promotional campaign in a new area. Moreover, adopters should be encouraged to perceive the benefits by constantly referring to them during the follow up processes. Use of local language and reference to crops grown locally would help the process of adoption.

Annex Table 1

Field visit and methodology for data collection – July 2002

Levels of data collection	Organisation/area	Information collection method
IDE, Ranchi	AMIT staff	Extensive discussions based on checklist
Market chain players		
C and F agent	Om Engineering, Ranchi	Interviews based on checklist
Dealer	K.C Pal and Sons, Purulia	
NGO resource persons	SRI, Ranchi GVT, Ranchi Kalyan KVK, Purulia BSS, Jamshedpur	Personal discussions
Farmers	Ranchi, Purulia and Jamshedpur	Personal discussions based on checklist Responses for the rabi crop based on recall Farmer recall for economic data collection
Neighbours	Purulia	Group discussion
AMIT plot visits	Ranchi, Purulia and Jamshedpur	Personal observation of standing AMIT zaid crop