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FINAL REPORT

FOR THE IMPLEMENTATION OF THE NATIONAL PHASE-OUT OF METHYL BROMIDE-CHINA

Phase I

REPORTING PERIOD: October 2006 - March 2008

Project No.:MP/CPR/03/092

UNIDO's Contract No.: 2004/218

Beijing, China

31st March 2008

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Acronyms:

AlP: aluminium phosphine

ExCom: Executive Committee

FECO: Foreign Economic Cooperation Office

MB: Methyl Bromide

MEP: Ministry of Environmental Protection

MLF: Multilateral Funds

MOA: Ministry of Agriculture

ODP: Ozone Depleting Potential

PH3: phosphine

SAG: State Administration of Grain

STMA: State Tobacco Monopoly Administration

TA: Technical Assistance

UNEP: United Nations Environment Programme

UNIDO: United Nations Industrial Development Organization

1. Abstract

Phase I: "The National Methyl Bromide Phase-out Sector Plan in China" was approved by the 41st Meeting of the Executive Committee of Multilateral Fund.

The aim of Phase I is to phase-out 389 ODP tones of Methyl Bromide by December 31st, 2006, which includes 126 ODP tonnes of Methyl Bromide used in the grain storage sector and 263 ODP tonnes of Methyl Bromide in the tobacco seedling sector.

The final report for the implementation of the National phase-out of methyl bromide-China Phase I summarizes the activities implemented until 31st March 2008.

2. Methyl bromide phase-out target achieved

In 2007, according to the agreement signed between China and ExCom, of the MLF, 153.2 ODP tones MB have been phased out, to meet the maximum eligible consumption of 570.6 tones. It is estimated that the total consumption of methyl bromide in China, in 2007, is 389.54 ODP tonnes, which is 181.06 tones lower than the eligible consumption limit agree with the ExCom, of the MLF. As established by the MLF, the final methyl bromide consumption figure for the year 2007 will be reported to the Ozone Secretariat in September 2008.

Methyl bromide consumption in 2003-2007

Year		2003	2004	2005	2006	2007
Max. allowable consumption approved by Excom (ODP tones)	Commodity	126	126	46	25.2	0
	Tobacco	427.8	427.8	300	164.6	124.6
	Agriculture	534	534	534	534	446
	Total	1087.8	1087.8	880	723.8	570.6
Actual consumption (ODP tones)	Commodity	126	52.2	32.1	6.96	0
	Tobacco	427.8	227.8	54	21	32.4*
	Agriculture	534	534	534	282.08	357.14*
	Total	1087.8	814	620.1	310.04	389.54*
Phase-out achieved (ODP tones)	Commodity	0	73.8	20.1	25.14	6.96*
	Tobacco	0	200	173.8	33	-11.4*
	Agriculture	0	0	0	251.92	-75.06*
	Total	0	273.8	193.9	310.06	-79.5*

Note:

1) "*" estimated figure.

2) Though the control target has been met, the consumption of methyl bromide increased in 2007 compared to 2006 because:

   - In 2006, 300 tonnes of methyl bromide were exported due to the political reasons and, since the methyl bromide production is also controlled under the "Sector plan for methyl bromide production sector in China", the system was unable to compensate timely with extra production, therefore the national market was affected by a shortage of methyl bromide.
   - To increase the farmland area and the crops output, China has adopted several policies to protect the existing farmland and encourage farmers to expand their farmland area, which consequently slightly increased the demand of the methyl bromide in 2007.

3. Achievement by sub-sector

3.1 Grain Storage Sector

Since 2004, FECO/MEP and SAG have established a joint working group for phasing out methyl bromide in the commodities fumigation sector. In this sector, US$1.46 million has been allocated. The Announcement for ban on Methyl bromide consumption in commodity sector has been issued, jointly by SAG and MEP in September 2006. From December 31st, 2006, the consumption of methyl bromide is forbidden in the commodity fumigation sector.

By March 31st, 2008, the main activities and outputs achieved in the Commodity sector were as follows:

3.1.1 Alternative technologies

There are two alternatives technologies used for the commodities sector:

a) Phosphine recirculation under plastic film, from aluminium phosphine tablets and

b) Phosphine mixed with carbon dioxide from phosphine generator. (See technology assessment on phosphine recirculation under plastic film, from aluminium phosphine tablets, and phosphine mixed with carbon dioxide, from phosphine generator, at table No.1, Annex I).

3.1.2 Investment

a) Project sites identification: among the 128 national warehouses, 34 were selected as technical transfer centres.

b) Technology transfer scheme: three format were identified based on warehouses characteristics:

- Scheme I: Provide phosphine generator and plastic film to old warehouse with weak gas tightened capacity and small volume.
- Scheme II: Provide phosphine generator and plastic film to new warehouse with sound gas tightened capacity and large volume.
- Scheme III: Provide phosphine generator without plastic film for silos.

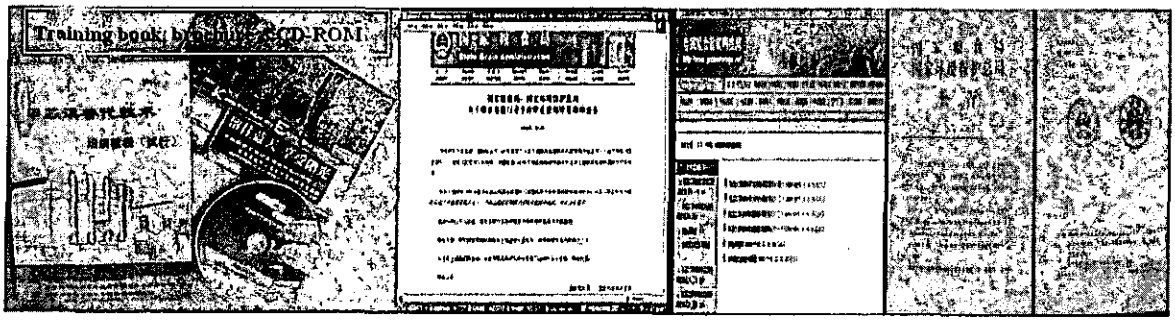
c) Equipment procurement: the equipment procured for these 34 warehouses include: 49 phosphine generators, 34 recirculation devices, 34 PH3 high concentration meters, 34 PH3 low concentration meters and some amount of aluminium phosphine, plastic film for grain fumigation in bulk, and safety devices. All have been purchased according with the procurement procedure of UNIDO and FECO/MEP.

d) *Project status: equipment delivery and installation started in September 2006.* By March 2007, all of the phosphine generators were installed and verified. From June to September 2007, the 34 warehouses carried out fumigation with the phosphine generators granted by MLF. During that period, FECO/MEP and SAG jointly verified the 34 project sites. It was agreed that the quality of equipments, installation, engineering and materials delivered were in line with project requirements and the methyl bromide phase-out target was successfully achieved. (See detailed information of 34 project warehouses at table No.2, Annex I)

3.1.3 Completed Technical Assistance activities

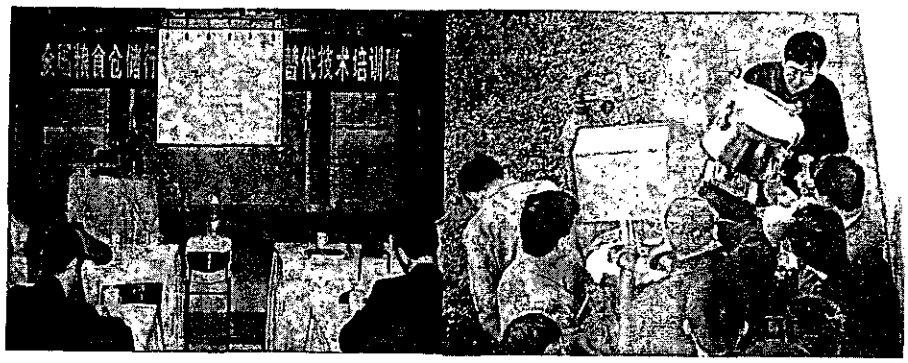
a) A detailed survey of methyl bromide consumption in the grain storage sector has been conducted for selecting the Technology Transfer Centres. The survey report was issued in March 2005.

b) Training materials have been produced and printed and now is in use.



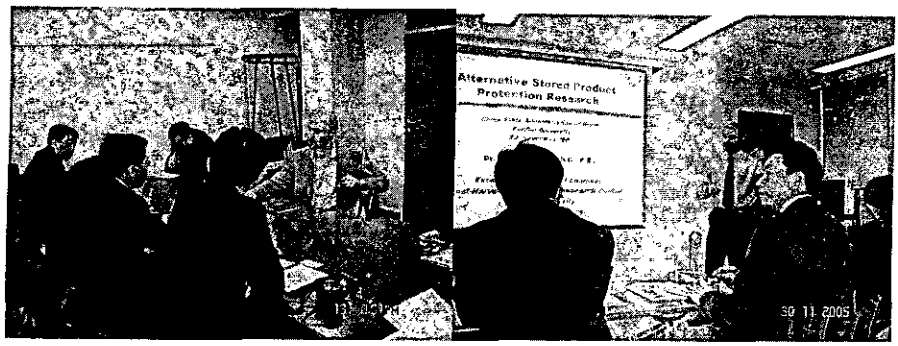
c) The "Technical Provision for Phosphine Fumigation in Grain Storage" had been finalized in December 2005. Currently it follows the procedure to be issued as a government technical norm.

d) Training courses have been held in three provinces; 387 technicians have been trained from the end of 2005 to 2006.

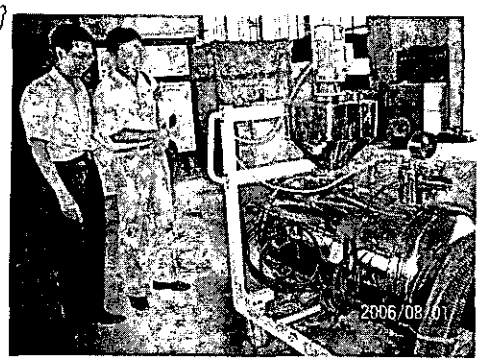


e) An expert team, composed of 10 experts, was established in 2004 to train technicians, and provided technical assistance during the implementation of the commodities sub-sector plan.

f) Two international training study tours were implemented. One team of 10 experts visited Europe in December 2004; the other went to USA in December 2005.



g) The monitoring and inspection of equipment purchased, installation and commissioning at the 34 warehouses area carried out by Guomao Engineering Design Institute since 2006.



3.1.4 On going technical assistance activities

The following 3 additional technical assistance sub-projects are still on going:

a) Technical support sub-project (Tracking, monitoring and evaluating on the alternative technology): to monitor and evaluate the alternative technologies, to monitor the PH3-resistance in the 34 project sites.

b) Supervision and monitoring mechanism sub-project: to create an integrated long-term supervision and monitoring mechanism (including set-up of monitoring systems), to dispose the stockpiles of methyl bromide, and to demonstrate and disseminate alternative technologies.

c) Training, workshop and study tours: to organize a wrap-up meeting and conferences to exchange experiences and facts on alternative technologies; to organize public awareness meetings, to attend international conferences, and study tours.

The terms of references had been approved by FECO/MEP's Contract Committee in 2007. The first two contacts, signed in December 2007, were awarded to Chengdu Research Institute of Grain Storage. The third one was issued to SAG. All the technical assistance projects have been initiated and will be finalized by the end of 2008.

3.1.5 Project financial balance

No.	Activity	Contract No.	Contract Amount (USD)	Disbursement (USD)	Status
1	Methyl bromide consumption survey	F/III/S/05/083	76,000	76,000	Completed
2	Training materials preparation and brochure, DVs	F/III/S/05/085	60,000	60,000	Completed
3	Technical specification for the phosphine fumigation in Tobacco sector	F/III/S/05/086	24,000	24,000	Completed
4	Training courses	F/III/S/05/039	107,000	107,000	Completed
5	No. 2 study tours		94,000	94,000	Completed
6	Equipment procurement and installation	F/III/S/06/175-191 F/III/S/06/192-198, F/III/S/06/201-210	556,000	516,800	Ongoing

No.	Activity	Contract No.	Contract Amount (USD)	Disbursement (USD)	Status
7	Supervision and inspection to equipment and testing	F/III/S/06/528	61,000	61,000	Completed
8	Training, workshop and study tours	N.A.	100,000	0	Ongoing
9	Supervision and monitoring mechanism sub-project	F/III/S/07/421	122,000	36,600	Ongoing
10	Technical support sub-project (see 3.1.4 a)	F/III/S/07/422	260,000	78,000	Ongoing
	Total		1,460,000	1,053,400	

3.1.6 Performance Assessment

Through a continuous verification and monitoring, it was proved that phosphine generators are an effective alternative to methyl bromide fumigation in the commodity sector: the pests are controlled very well, and there is little chemical residue. Operational and safety has also been improved to acceptable standards.

Cost comparison between Phosphine recirculation under plastic film, from aluminium phosphine tablets and Phosphine mixed with carbon dioxide from phosphine generator and methyl bromide fumigation, is summarized as follow: The dosage of AlP for both is 1.5~3 g/m^3, the dosage for methyl bromide is 25 g/m^3. Considering the prices of AlP and methyl bromide respectively of 26,000 RMB per tone and 28,000 RMB per tone, the cost ratio is about 1:2 (phosphine recirculation under plastic film, from aluminium phosphine tablets/phosphine mixed with carbon dioxide, from phosphine generator to Methyl bromide). Therefore, the cost of phosphine treatment is lower than methyl bromide.

However, on the other hand phosphine fumigation takes longer time than methyl bromide, 14 days compared to 3 days, which implies additional management cost.

3.1.7 Conclusion

In conclusion, phosphine recirculation under plastic film, from aluminium phosphine tablets, and phosphine mixed with carbon dioxide, from phosphine generator to Methyl bromide substitute methyl bromide effectively. Since the beginning of 2007, methyl bromide is no longer used in China for commodity fumigation; 34 warehouses were upgraded with the contribution of the MLF, the remaining 94

warehouses were upgraded with the contribution of the Government of China.

3.1.7.1 Lessons learned

The achievements of Methyl Bromide phase-out in the commodity sector are remarkable. This could not be achieved without the support and assistance of the State Grain Administration and other Government institution that cooperated in this project.

3.2 TOBACCO SEEDLING SECTOR

Since 2004, FECO/MEP and STMA had established a joint working group for phasing out methyl bromide in the tobacco sector. The programme has been developed in 2 stages. A total of US$1.935 million was allocated in stage I, of which, US$ 1.535 million has been used for construction of greenhouses and procure equipment for floating tray tobacco seedlings, and of which, US$ 0.4 million partially has been and partially will be used for technical assistance activities.

3.2.1 Alternative technology

Tobacco floating tray technology has been selected to substitute methyl bromide in the tobacco seedling sector.

3.2.2 Investment

In stage I, no. 6 technology transfer centres were identified: Dali in Yunnan Province, Longyan in Fujian Province, Zunyi in Guizhou Province, Nanyang in Henan Province, Linyi in Shandong Province, and Enshi in Hubei Province.

The procurement for the greenhouses was divided into 2 packages. The first package covered the south area, including Dali, Longyan, Zunyi and the second package covered the north area including Nanyang, Linyi and EnShi.

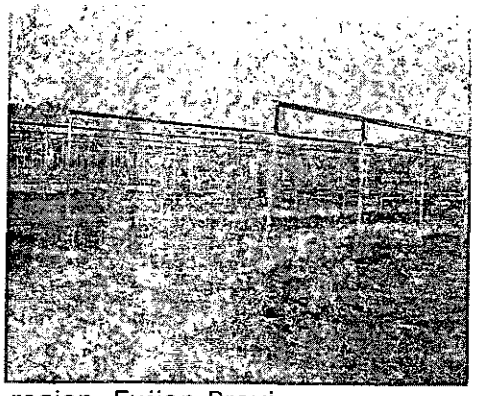
3.2.2.1 Greenhouse installation in the South of China

a) For Zunyi and Longyan regions new greenhouses were needed, and 38 greenhouses had been built, including 2 polycarbonate board greenhouses (type A) and 36 polyethylene films (type B), the total area is 28,599 m^2. For Dali region, since sufficient greenhouses area existed already but did not meet the standard required for an effective and safe seedlings production, those greenhouses, for a total area of 31,302m^2, have been technically upgraded.

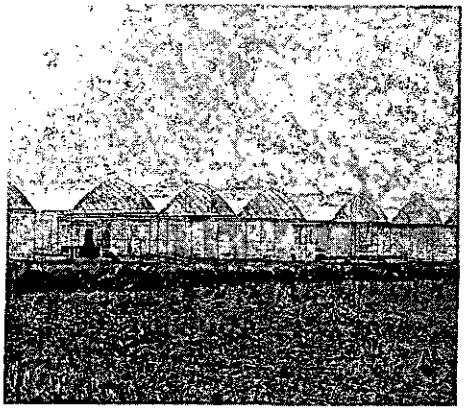
b) The equipment installation had been completed before the beginning of the seedling season 2006 (January – March) and put in operation. Either the quality of the seedling and the efficiency of the new installation are satisfactory and appreciated by farmers (See summary of greenhouse installation in south of China at table No.3, Annex I ; and detailed information and photos about Zunyi, Longyan and Dali regions at Annex II, III and IV, respectively).

c) The above equipment has been verified by MEP, STMA and UNIDO. Funds have

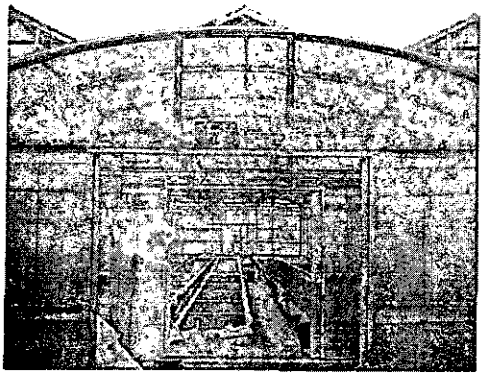
been disbursed accordingly.



Greenhouse Construction in Longyan region, Fujian Province.



Type B greenhouses of Longyan

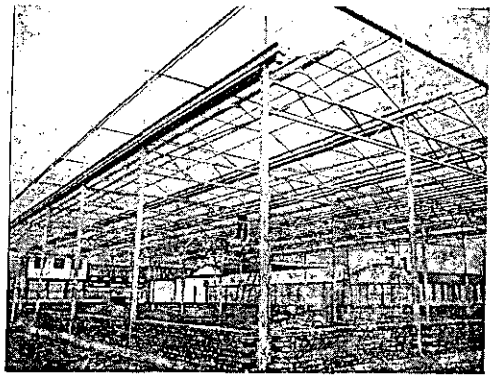


Type A greenhouses of Longyan

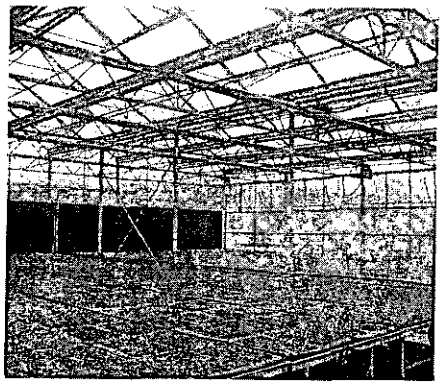
3.2.2.2 Greenhouse installation in the north of China

a) In order to facilitate the greenhouse construction process, MEP entrusted STMA to carry out competitive bidding according to UNIDO's rules for international and local competitive bidding and, if not in contradiction with UNIDO's rules, *according to rules and the practises of China. MEP closely monitored the process* and cleared the purchase orders.

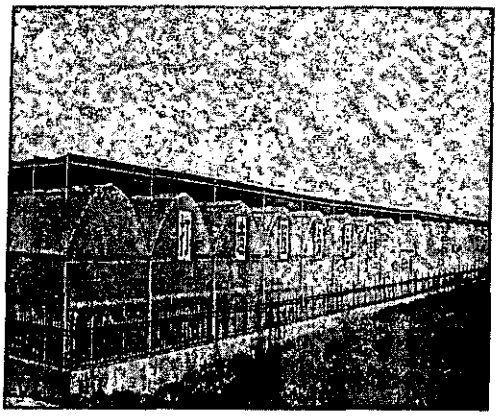
b) The equipment procurement and installation for Enshi, Linyi and Nanyang had been completed and put in operation. These three regional technology transfer centres had been verified by MEP and UNIDO (See summary of greenhouse installation in north of China at table No.4, Annex I; and detailed information and photos about Enshi LinYi and Nanyang regions at V, VI and VII respectively).



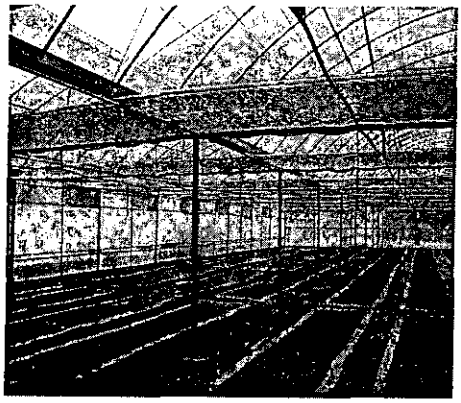
Greenhouse Construction in Nanyang



Type A green house in Nanyang.



Type B greenhouse in Nanyang



Greenhouses of Enshi

3.2.3 Technical Assistance activities

3.2.3.1 Meeting

a) Six coordination meetings have been organized to finalize the phase-out plan, the construction procedure and identify the technology transfer centre sites.

b) Wrap up meeting for Phase I was held in 2006 to summarize experiences and planning for the next stage.

c) Training workshops: two training workshops for local tobacco bureaus and companies were held. One for the formulation of the Technical Specification and the other is for bidding procedures. 302 participants from local tobacco bureaus and companies have been trained (See UNIDO/STMA presentation delivered in the workshop at Annex IX).

3.2.3.2 Study tour and training

a) 1st -16th November, 2004, 8 trainees from tobacco companies, research institutes, STMA, FECO/MEP visited Brazil, where floating tray system is largely used and well developed.

b) 14th – 22nd November, 2006, 13 trainees from tobacco companies, research

institutes, STMA, FECO/MEP visited Cuba where floating tray system is largely used and well developed as well as policy and management system.

c) Study tours to USA, Israel and the Netherlands are under preparation.

Study tour to Brazil

Study tour to Cuba

3.2.3.3 Awareness

In March 2007, to promote new technologies to phase-out methyl bromide in the tobacco seedling sector, STMA signed a contract for developing a tobacco sector websites. STMA also proposes to carry out a series of awareness activities in the future. The terms of references are under preparation (See summary of technical assistance programme of tobacco sector at table No.5, Annex I).

3.2.4 Performance Assessment

The cost comparison between floating tray system and methyl bromide shows that the floating tray system technically and economically satisfies the requirement of tobacco seedlings production (See details at table No.6 and No.7, Annex I).

The tobacco sector took advantage of the technology transfer centres, which played important role to promote the alternative technologies to other tobacco production areas.

3.2.5 Project financial balance

No.	Activity	Contract Amount (USD)	Disbursement (USD)	Status
1	Greenhouse construction in the south of China (Stage I)	755,000	755,000	Completed
2	Greenhouse construction in the north of China (Stage I)	780,000	0	Ongoing
3	Meeting	48,785	48,785	Completed
4	Study tour	48,006	48,006	Completed

No.	Activity	Contract Amount (USD)	Disbursement (USD)	Status
5	Expert fee	6,643	6,643	Completed
6	Website for awareness	29,500	8,850	Ongoing
	Total	*1,667,934	867,284	

"*" Notes:

1) US$ 1,535,000 has been used for greenhouse and procurement of equipment as listed in item 1-2;

2) US$ 132, 934 has been allocated for the technical assistance activities as listed in item 3-6. In addition, another US$ 267,066 will also be allocated for technical assistance.

3.2.6 Conclusion

3.2.6.1 Experience

a) The floating tray system technology is effective.

b) The Chinese government, especially STMA, attached great attention to this project and invested consistent additional fund.

c) An effective working mechanism was established, including the joint working group, the regular meetings between MEP and STMA and the close collaboration with local tobacco bureaus/companies.

3.2.6.2 Problems encountered

a) In some of the project sites, the utilization of the greenhouses needs further optimization.

b) Space management need to be improved.

c) The cost of the greenhouse is relatively high. Common farmers with poor revenue can not afford to build that kind of greenhouses as technology transfer centres.

3.2.6.3 Suggestions and proposals

a) To improve the methodology for a more effective utilization and space management of the greenhouse.

b) To develop more cost-effective structure and mythologies for floating tray system.

3.3 AGRICULTURE SECTOR

3.3.1 Technical assistance programme for training in agriculture sectors

a) Training sub-project on biological alternative technologies of soil fumigation: The contract was signed with the Qinhuangdao Leading Science & Technology Development Company LTD on February, 2005 for the total amount of RMB 3,018,100. The subcontractor had carried out research and training courses to farmers promoting the use of biological agents in the tomato, cucumber and strawberry sectors. The medium-term report for the three sectors had been submitted to FECO/MEP in December 2006.

b) On March16th, 2006, a wrap-up meeting for bio-alternative technology for soil fumigation on strawberry was held in Baoding, Hebei. 40 representatives from UNEP, UNIDO, MEP, China Academy of Agriculture, and China Agriculture University attended the meeting. The representatives visited the test site for bio-alternative technology for soil fumigation on strawberry and assessed the performances of different treatments.

c) Through research and training courses, it appears that biological alternative technologies can not control Soil Borne diseases alone. However, it shows that the biological alternative technologies are a valuable tool to strengthen the effectiveness of other alternatives.

d) During Apr. 22nd-23rd, 2006, FECO/MEP and China National Agro-tech Extension & Service Centre jointly sponsored "Seminar of Bio-alternative Technology for Strawberry" in Beijing. Experts from UNIDO, UNEP and TEAPS inspected for the second time the test site for soil fumigation on strawberry.

e) During the International Ozone day of 2005, in Shenzhen, FECO/UNIDO organized an international workshop on methyl bromide alternative technologies.

4. Policies

For the management of methyl bromide production, consumption and trade in China, the following policies have been issued:

a) Circular on the establishment, expansion or innovation of 1,1,1-Tricholorethane and Methyl Bromide production equipment (Huanfa No. 60 [2003]), July 1st, 2003.

b) Public Notice on Implementing Methyl Bromide Production Licensing and Quota Management (Huanfa No. 155 [2004]), 21st May 2007.

c) Control for the methyl bromide import and export (including QPS): the Licensing Management for import and export of Methyl Bromide (including QPS)

became effective since 1st January 2004.

d) Catalogue of Controlled ODS in China's Import & Export (Third batch) (Huanfa No. 25 [2004]), 6th February 2004.

e) Ban of Methyl Bromide in the commodities sector by SGA and MEP (No. 4 [2006]), 26th September 2006.

(The end)

Annex I

Table No.1: Methyl bromide alternatives of commodity fumigation

Content		Comparison of alternative technologies		
		Phosphine recirculation under plastic film, from aluminium phosphine tablets		Phosphine mixed with carbon dioxide, from phosphine generator
		PH_3 from generator	PH_3 from tablets	
With PH3 gas recirculation		Yes	Yes	No
Fumigation under the plastic film		Yes	Yes	No
Dosage		commonly $3g/m^3$ equivalent to 200 ppm for non-resistant species e.g. Sitophilus zeamais, Tribolium castaneum etc. or 300 ppm for resistant species e.g. Rhyzopertha dominica, Cryptolestes ferrugineus etc., at 25~30 °C		
Exposure time		14 days	14 days	14 days
CO_2/PH_3	CO_2	Yes	No	Yes
	Concentration in the grain mass	about 1% (about 1 kg AlP + 25 kg cylinder CO_2)	/	≥5% (according to depot volume)
Insects control		Good	Average	Good

Table No. 2: Technology Transfer Centres of the commodity sector

Provinces	No.	Warehouse for technology transfer centre	Technology transfer scheme			Contract amount (RMB)	Contract No.	Status
			Scheme I	Scheme II	Scheme III			
Tianjin	1	Tianjin Jinghai the 2nd Grain Storage		✓		147,278.00	F/III/S/06/175	Completed
	2	Tianjin Junliangcheng State Grain Storage			✓	136,610.00	F/III/S/06/176	Completed
	3	Tianjin Pujidao State Grain Storage			✓	132,410.00	F/III/S/06/177	Completed
	4	Tianjin Binhai Grain Storage			✓	96,850.00	F/III/S/06/178	Completed
Hebei	5	Hebei Daming State Grain Storage		✓		149,006.00	F/III/S/06/179	Completed
	6	Hebei Hanshan State Grain Storage		✓		149,683.00	F/III/S/06/180	Completed
	7	Hebei Jizhe Chengguan Grain Storage	✓			94,507.00	F/III/S/06/181	Completed
	8	Feixiang zhishu Grain Storage	✓			93,736.00	F/III/S/06/182	Completed
	9	Yongnian Gouxiao Grain Storage	✓			99,136.00	F/III/S/06/183	Completed
	10	The 2nd Grain Storage under Guangping Grain Administration	✓			94,305.00	F/III/S/06/184	Completed
	11	Cixian State Grain Storage	✓			97,588.00	F/III/S/06/185	Completed
	12	Huangkaihe Grain Storage under the Linzhang Grain Administration	✓			93,117.00	F/III/S/06/186	Completed

Provinces	No.	Warehouse for technology transfer centre	Technology transfer scheme			Contract amount (RMB)	Contract No.	Status
			Scheme I	Scheme II	Scheme III			
	13	Hucun Grain Storage under the Handan Grain Administration	✓			92,912.00	F/III/S/06/187	Completed
	14	Handan Depot Directly under China Grain Reserves Corporation		✓		148,669.00	F/III/S/06/188	Completed
Liaoning	15	Dalian Jinzhou State Grain Storage		✓		149,044.00	F/III/S/06/189	Completed
	16	Dalian Jinzhou State Grain Storage		✓		145,598.00	F/III/S/06/190	Completed
	17	Dalian Youyi State Grain Transfer Storage			✓	127,350.00	F/III/S/06/191	Completed
Shandong	18	Heze Grain Storage	✓			174,140.00	F/III/S/06/192	Completed
	19	Linqing the 1st State Grain Storage		✓		171,070.00	F/III/S/06/193	Completed
	20	Liaocheng Guanxian Grain Storage	✓			105,544.00	F/III/S/06/194	Completed
	21	Shandong Heze Juye Grain Administration		✓		106,217.00	F/III/S/06/195	Completed
	22	Zibo Dongjiao Grain Handling Company	✓			108,934.00	F/III/S/06/196	Completed
	23	Shandong Binzhou State Grain Storage	✓			115,454.00	F/III/S/06/197	Completed
	24	Dong'e Grain Storage	✓			106,966.00	F/III/S/06/198	Completed

Provinces	No.	Warehouse for technology transfer centre	Technology transfer scheme			Contract amount (RMB)	Contract No.	Status
			Scheme I	Scheme II	Scheme III			
	25	Heze Yincheng Grain Administration	✓			113,348.50	F/III/S/06/201	Completed
	26	Heze Dingtao Grain Administration	✓			113,348.50	F/III/S/06/202	Completed
Anhui	27	Anhui Mechanisation Grain Storage		✓		177,353.00	F/III/S/06/203	Completed
	28	Mengcheng State Grain Storage	✓			102,692.00	F/III/S/06/204	Completed
	29	Anhui State Grain Depot of the China Grain and Oils Group		✓		183,813.00	F/III/S/06/205	Completed
Guangdong	30	The 1st Grain Storage of Guangdong Grain Handling Company	✓			185,784.00	F/III/S/06/206	Completed
	31	Haizhu Grain Storage			✓	110,400.00	F/III/S/06/207	Completed
Shaanxi	32	Shanxi 802 Unit		✓		169,764.00	F/III/S/06/208	Completed
Guangxi	33	Liuzhou State Grain Storage		✓		170,308.00	F/III/S/06/209	Completed
Gansu	34	Wuwei City Grain Storage		✓		184,922.00	F/III/S/06/210	Completed
Total						4,447,857		

Table No. 3: Greenhouse construction in the South of China Stage I for tobacco sector

No.	Beneficiary	Construction Site	Type	Greenhouse No.	Completion date	Commissioning	Area (m^2)
1	Zunyi area, Gui Zhou Province	Meitan County Xima Town Xinchang Village	B	5	Jan. 20, 2006	Aug.16, 2006	30,000 new construction
		Zunyi County Dieguan Town Lianxin Village	A	1			
		Zunyi County Dieguan Town Lianxin Village	B	5			
		Suiyang County Wangcao Town Xiasi Village	B	5			
		Tongzi County Jiuba Town Shanbao Village	B	5			
2	Longyan area, Fu Jian Province	Longyan Research Institute for Science	B	1	Dec.10, 2005	Jun.14, 2006 and Apr. 2007	30,000 new construction
		Changting County Hetian Town Songlin Village	B	8			
		Shanghang County Lufeng Town Fengkang Village	B	8			
3	Yun Nan Province	Xiangyun County of Dali	B	N.A.	Jan.20, 2006	Jun.8, 2007	31,302 technical upgrading
	Total			38			91,302

Table No. 4: Greenhouse construction in the North of China Stage I for tobacco sector

No	Beneficiary	Construction Site	Type	Greenhouse No.	Completion date	Commissioning	Area (m^2)
1	Nanyang area, Henan province	Golden leaf Garden of Nanyang	A	1	Mar. 1, 2007	July,2007	13,414.4
		Fangcheng County Guangyang Town	B	2	Mar. 1, 2007		
		Sheqi County Miaodian Village	B	1	Mar. 1, 2007		
		Neixiang County YuguanVillage	B	2	Mar. 1, 2007		
2	Linyi area, Shandong province	Fei County Xiaoshan Village	A	1	Feb.25, 2007	April,2007	12,224
		Fei County Xiaoshan Village	B	1	Feb.25, 2007		
		Daotuo Tobacco Station of Yishui County	B	2	Feb.25, 2007		
3	Enshi area, Hubei Province	Cuiba base of Research Institute for Science	A	2	Apr 30, 2006	May,2007	13,286.4
		Enshi City Xintang Town Qianping Village	B	3	Apr 30, 2006		
		Lichuan City Wendou Town Anshan Village	B	3	Apr 30, 2006		
		Hefeng County Zhongying Town Yanwu Village	B	3	Apr 30, 2006		
	Total			21			38,924.8

Table No. 5: Summary of technical assistance projects of tobacco sector

No.	Project	Duration	Expenditure (US$)	Remark	Status
1	MB study tour to Brazil	2004.11.1-16	12,343.00	Training floating tray technology	Completed
2	First coordination meeting	2005.6.10-11	4,959.00	Planning the MB phasing out plan of tobacco sector, Phase I	Completed
3	Second coordination meeting	2005.8.4-5	11,123.00	Define the procedure for establishment of demonstration centres, Phase I	Completed
4	Third coordination meeting	2005.10.13-14	8,009.00	Define the procedure for greenhouse construction	Completed
5	MB phase-out (Stage I) wrap-up meeting	2006.4.20-21	3,635.00	Assessment of experience and planning for the next stage	Completed
6	Expert team	2005.11-2006.7	6,643.00	Supervise the construction of greenhouse	Completed
7	MB study tour to Cuba	2006.11.14-22	15,000.00	Training on policies and floating tray technology	Completed
8	Fourth coordination meeting	2006.8.18	8,625.00	Planning the MB phasing out plan of tobacco sector, Phase II	Completed
9	Fifth coordination meeting	2006.9.16	2,188.00	Define the procedure for procedure for establishment of demonstration centres, Phase II	Completed
10	Sixth coordinating meeting	2007.6.21-22	9,467.00	Confine beneficiary areas	Completed
11	Training for Local tobacco companies for equipment procurement	2007.8.9-10	10,867.00	Training and compilation of TOR for equipment procurement	Completed
12	Training for Local tobacco companies for procurement	2007.9.3-5	10,575.00	Training for procurement rule and regulation	Completed
13	Awareness	2007.3.	29,500	Website for tobacco sector	Ongoing
Total			132,934		

Table No. 6: Cost assessment of the alternative technology of tobacco sector

Beneficiary	Supplier	Type	Construction site	Span* length (m)	Span	No.	Area (m^2)	Unit cost (RMB/ m^2)	Sub-total (RMB)	Total Amount (RMB)
Enshi area, Hubei Province	Jiangxi Jinxian Lvjia greenhouse project Ltd.	A	Cuiba base of Research Institute for Science	9.6*32	1	2	614.40	846.02	519,796.42	2,613,360.58
		B	Enshi City Xintang Town Qianping Village	8*64	3	3	4,608.00	161.50	744,192.00	
		B	Lichuan City Wendou Town Anshan Village	8*64	3	3	4,608.00	161.50	744,192.00	
		B	Hefeng County Zhongying Town Yanwu Village	8*48	3	3	3,456.00	175.11	605,180.16	
Linyi area, Shandong province	Beijing Jingpeng global greenhouse project Ltd.	A	Fei County Xiaoshan Village	12*44	2	1	1,056.00	554.73	585,800.00	2,585,014
		B	Fei County Xiaoshan Village	8*104	8	1	6,656.00	167.23	1,113,075.00	

Beneficiary	Supplier	Type	Construction site	Span* length (m)	Span	No.	Area (m^2)	Unit cost (RMB/ m^2)	Sub-total (RMB)	Total Amount (RMB)
		B	Daotuo Tobacco Station of Yishui County	8*124	3	1	2,976.00	182.38	542,768.00	
		B	Daotuo Tobacco Station of Yishui County	8*32	6	1	1,536.00	223.55	343,371.00	
Nanyang area, Henan province	Beijing Jingpeng global greenhouse project Ltd.	A	Golden leaf Garden of Nanyang	9.6*32	2	1	614.40	823.87	506,186.17	3,419,933.43
		B (single film)	Fangcheng County Guangyang Town	8*40	8	2	5,120.00	222.89	1,141,196.80	
		B (single film)	Sheqi County Miaodian Village	8*40	8	1	2,560.00	222.89	570,598.40	
	Jiangxi Jinxian Lvjia greenhouse project Ltd.	B (double film)	Neixiang County YuguanVillage	8*40	8	2	5,120.00	234.76	1,201,952.06	
Zunyi area, Gui Zhou Province	Jiangsu Agriculture mechanism	A	Zunyi County Dieguan Town Lianxin Village	9.6*32	2	1	629.00	530.21	333,502.30	2,188,671.9

Beneficiary	Supplier	Type	Construction site	Span* length (m)	Span	No.	Area (m^2)	Unit cost (RMB/ m^2)	Sub-total (RMB)	Total Amount (RMB)
	Research institute	B	Meitan County Xima Town Xinchang Village	8*32	3	5	3,840.00	120.78	463,792.40	
		B	Zunyi County Dieguan Town Lianxin Village	8*32	3	5	3,840.00	120.78	463,792.40	
		B	Suiyang County Wangcao Town Xiasi Village	8*33	3	5	3,840.00	120.78	463,792.40	
		B	Tongzi County Jiuba Town Shanbao Village	8*34	3	5	3,840.00	120.78	463,792.40	
Longyan,Fujian	Jiangsu Agriculture mechanism Research institute	A	Longyan Research Institute for Science	9.6*32	1	1	322.00	626.40	201,701.20	1,685,836.88
		B	Changting County Hetian Town Songlin Village	8*32	3	8	6,144.00	120.78	742,067.84	

Table No.7: Technical Assessment of the alternative technology of tobacco sector

Area	Seedlings Quality	Healthy seedling produced / m^2	Seedling lost after transplanting	Variation of Seedlings harvesting schedule (early/late)	Disease incidence on seedlings	Market acceptance	Alternative technologies
Chifeng	Good	3,000-3,500	2-3%	Little earlier	Reduced	Acceptable	Suspended boxes, overhead irrigation
Dali	Good	810	1%	No	No	Acceptable	Floating tray
Enshi	Good	450	5%	No	Reduced	Acceptable	Floating tray
Linyi	Average	500	5%	10 days earlier	Reduced	Acceptable	Floating tray
Longyan	Good	235	None	No	Reduced	Acceptable	Suspended tray, overhead irrigation
Nanping	Good	400	1%	No	No	Acceptable	Floating tray
Nanyang	Good	700	None	No	Decreased by 20%	Acceptable	Floating tray
Zunyi	Better	800	2%	Later	Reduced	Acceptable	Floating tray

Beneficiary	Supplier	Type	Construction site	Span* length (m)	Span	No.	Area (m^2)	Unit cost (RMB/ m^2)	Sub-total (RMB)	Total Amount (RMB)
		B	Shanghang County Lufeng Town Fengkang Village	8*33	3	8	6,144.00	120.78	742,067.84	
Dali, Yunnan	Jiangsu Agriculture mechanism Research institute	Upgrading	Xiangyun County of Dali				31,302.00	69.30	2,169,313.66	2,169,313.66

Annex II

甲基溴淘汰育苗示范中心建设情况汇报

遵义市烟草公司

二00七年六月六日

欢迎各位领导、专家

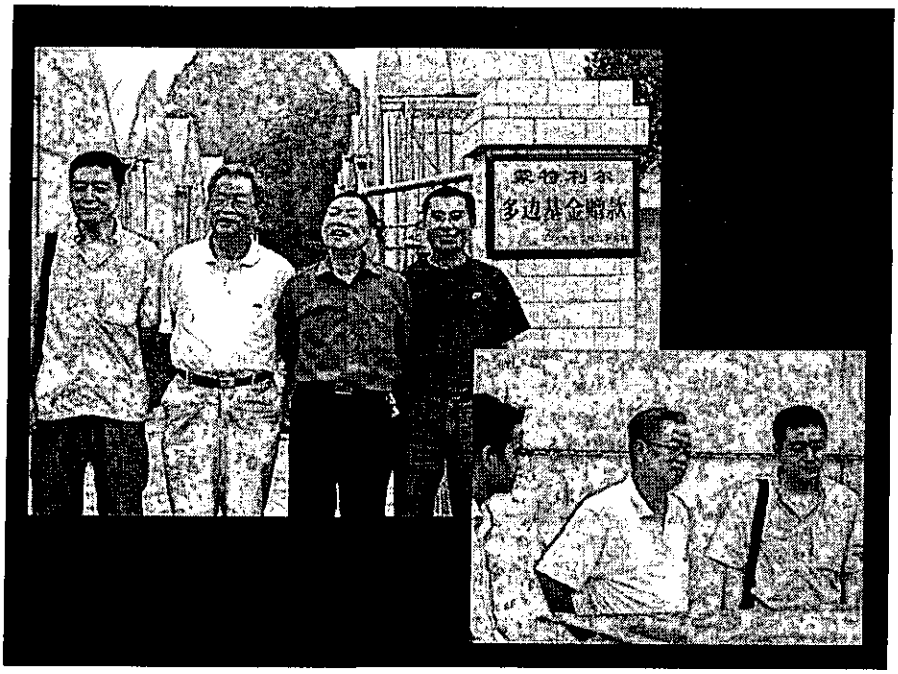
到遵义检查指导！

遵义市淘汰甲溴育苗现状

- 2000年以来，通过使用斯美地、适美地等低毒型土壤薰蒸剂替代，淘汰了甲基溴在烤烟育苗中的使用。
- 2006年通过大棚、中棚、小棚配套，100%实现了漂浮育苗商品化育苗供应。
- 2006年在1000米以上的高海拔烟区全部实行了中棚育苗。

项目组织管理

- 遵义市烟草公司由分管领导牵头组织，成立了由市公司技术中心、生产管理科、基础设施建设办公室为成员的领导小组。
- 国家烟草专卖局于2005年11月、12月和2006年元月三次到我市育苗示范中心施工现场进行质量检查；
- 国家烟草专卖局科教司派张晓刚科长于2006年3月3日在大棚建成后，对示范中心建设情况作了专项检查。


多边基金赠款

育苗中心情况

- 遵义县集约化育苗温室示范中心位于龙坪镇中心村“遵义科技园”内，距县城25公里；包括薄膜温室（B型）5座（15个大棚），温室面积3840 m^2，PC阳光板（A型）温室1座，温室面积614.40 m^2。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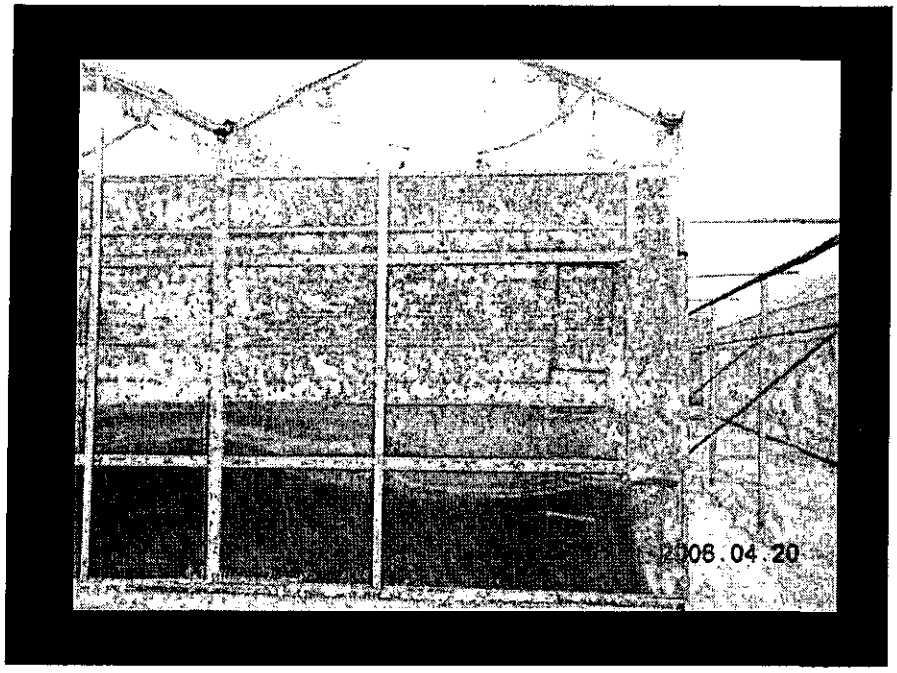
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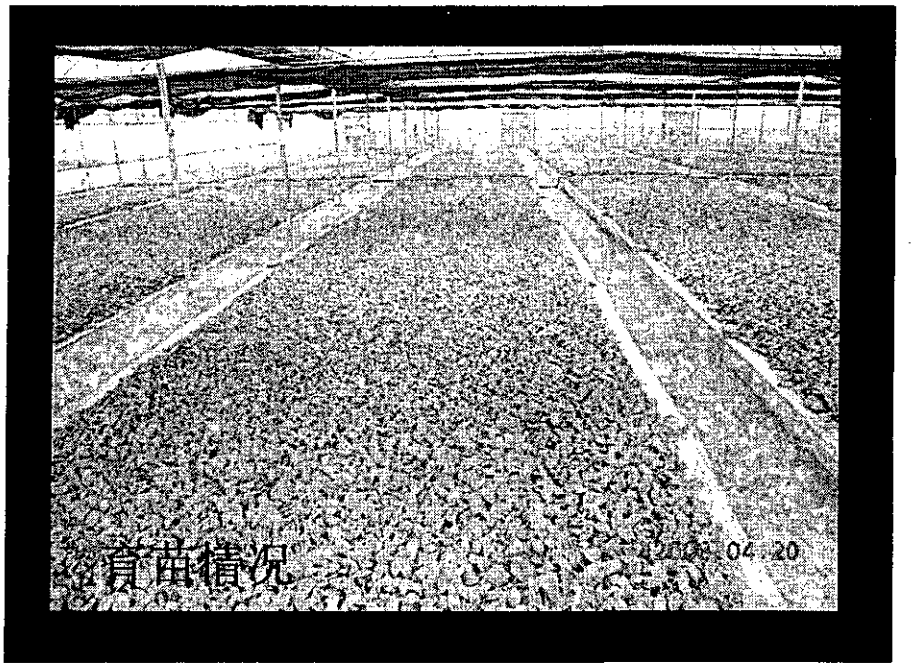
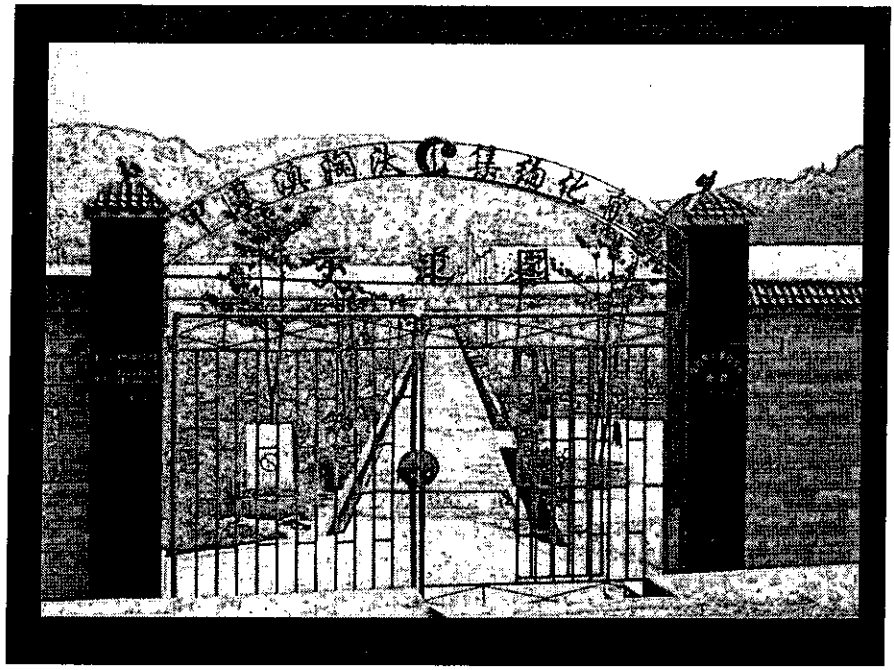
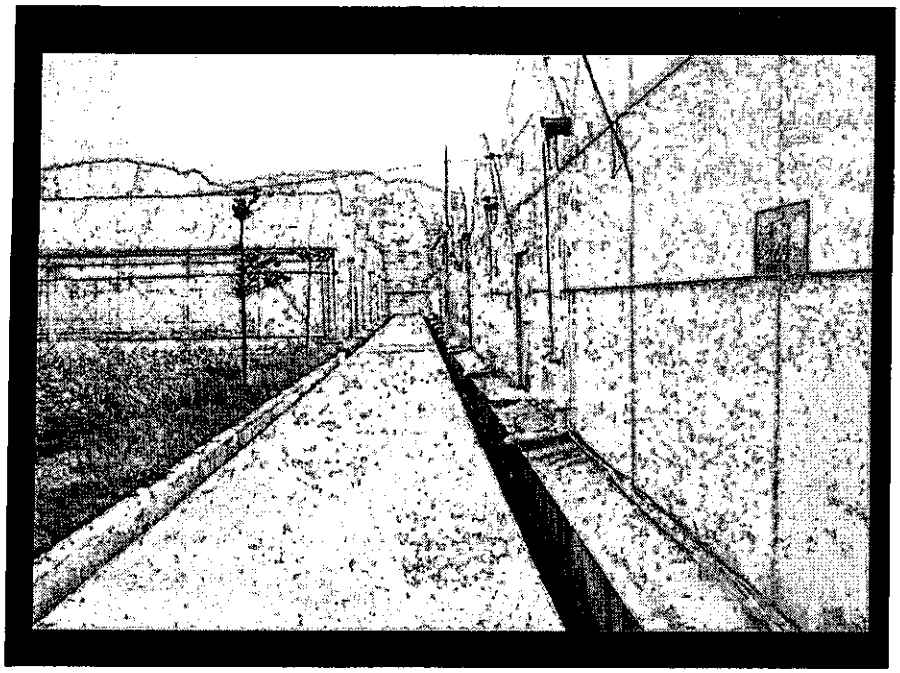
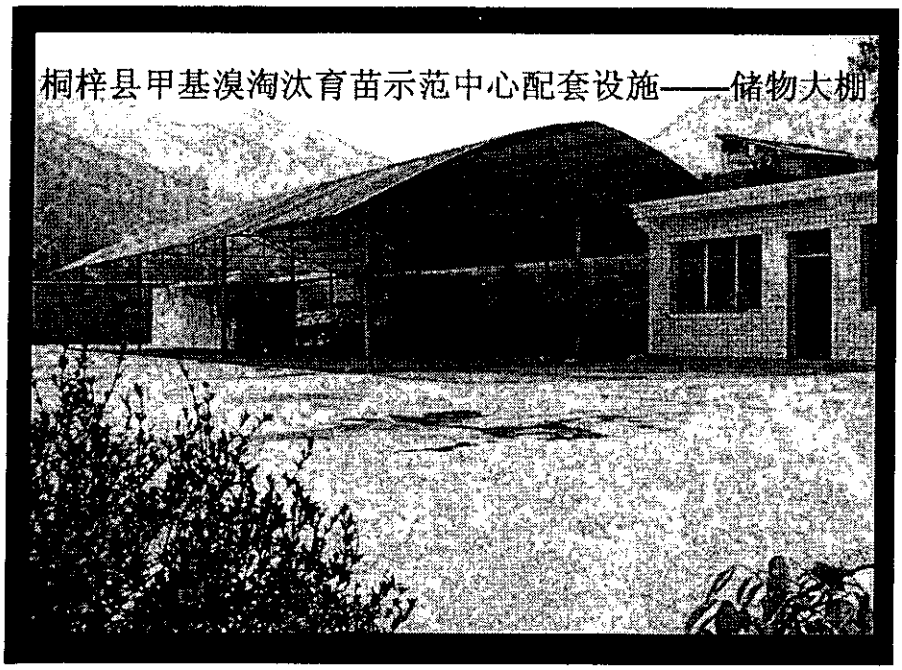


育苗情况

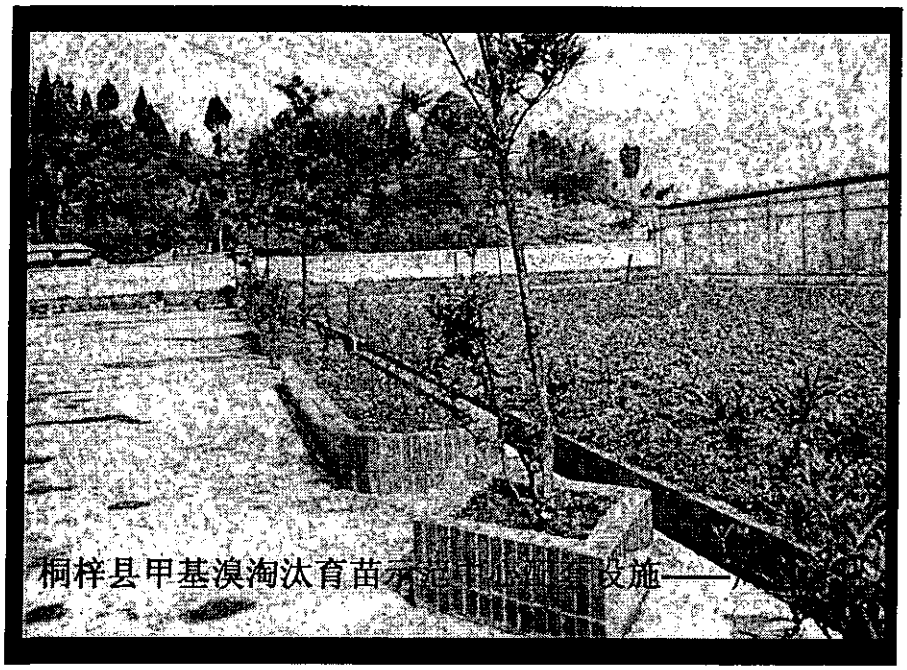
- 桐梓县集约化育苗温室示范中心位于娄山关镇天门村，距县城4公里，占地面积14.6亩，修建薄膜温室（B型）面积3840 m^2。
- 该中心可育苗15300盘，可供1912.5亩烟地移栽，2006年育苗15000盘，2007年共计育苗15014盘 。







桐梓县甲基溴淘汰育苗示范中心配套设施——储物大棚



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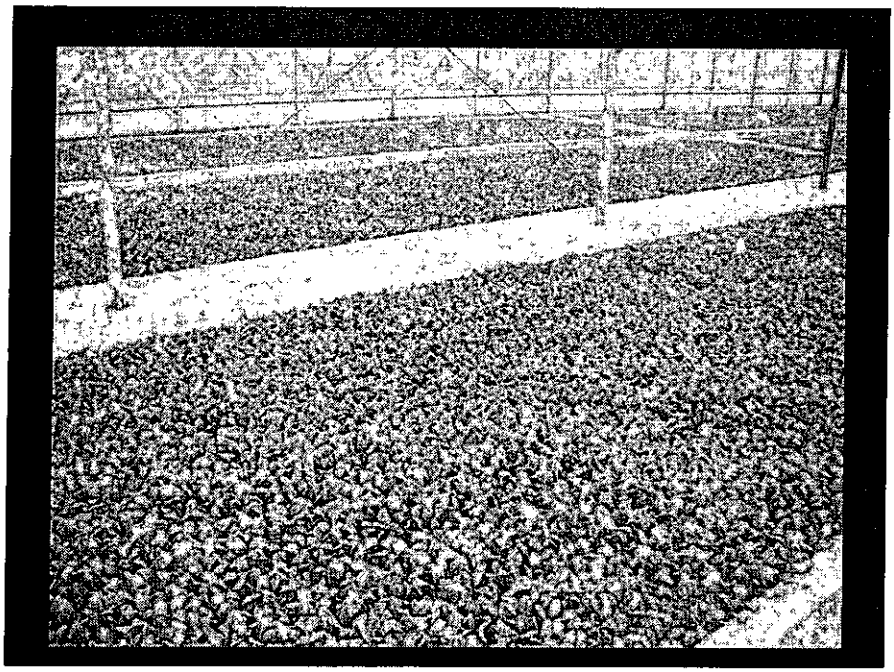
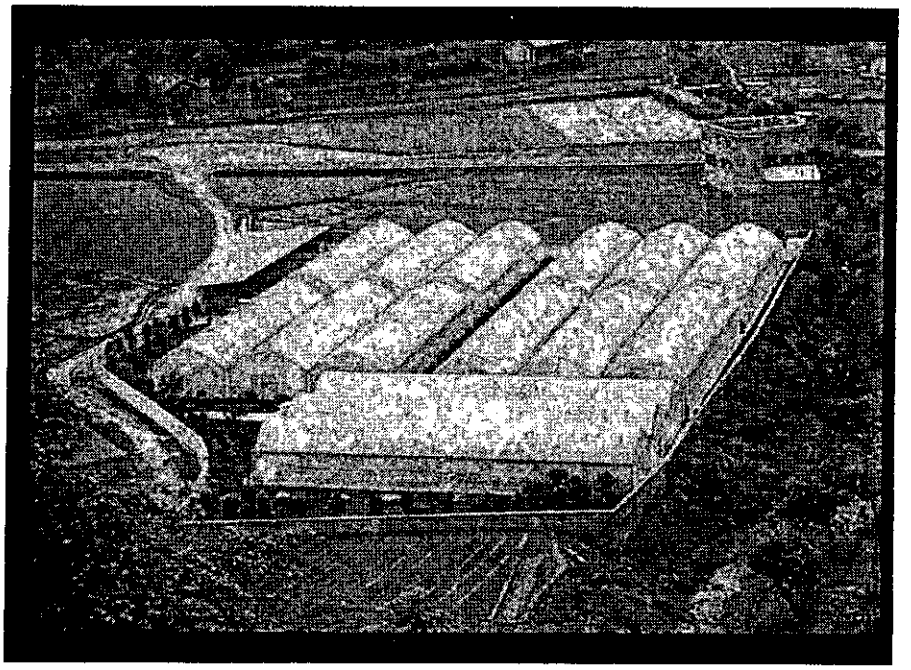
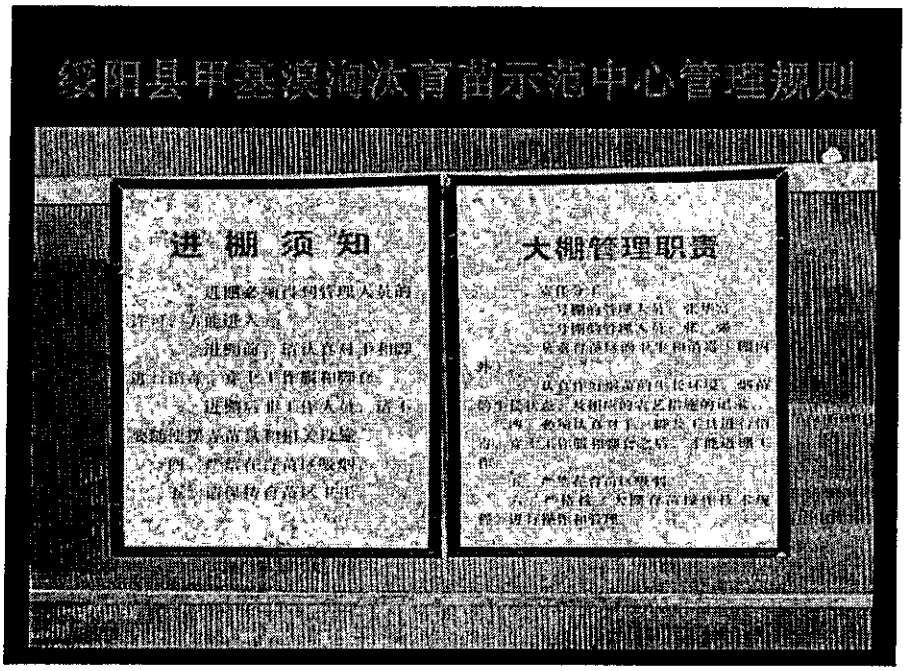
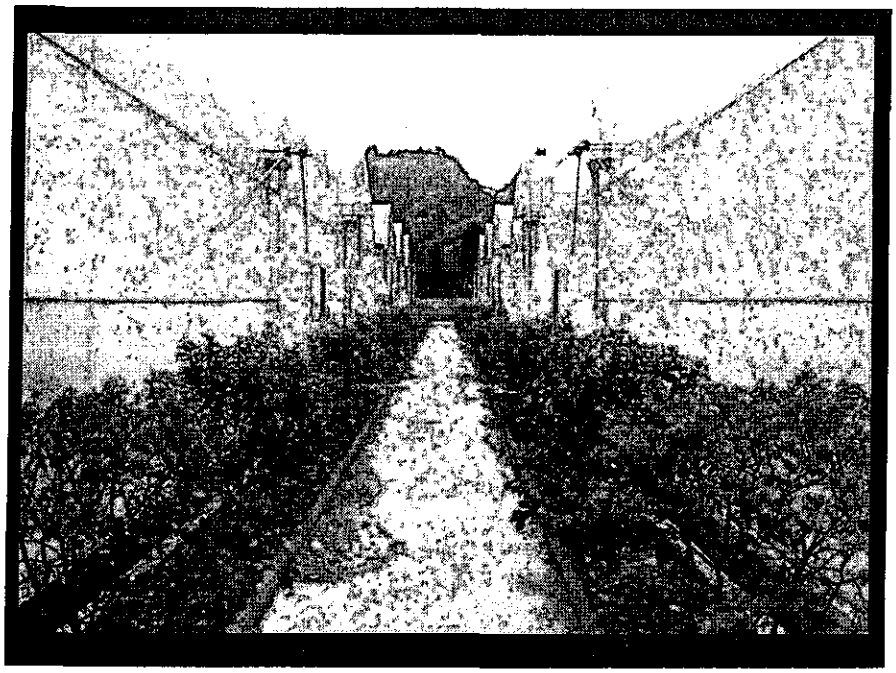
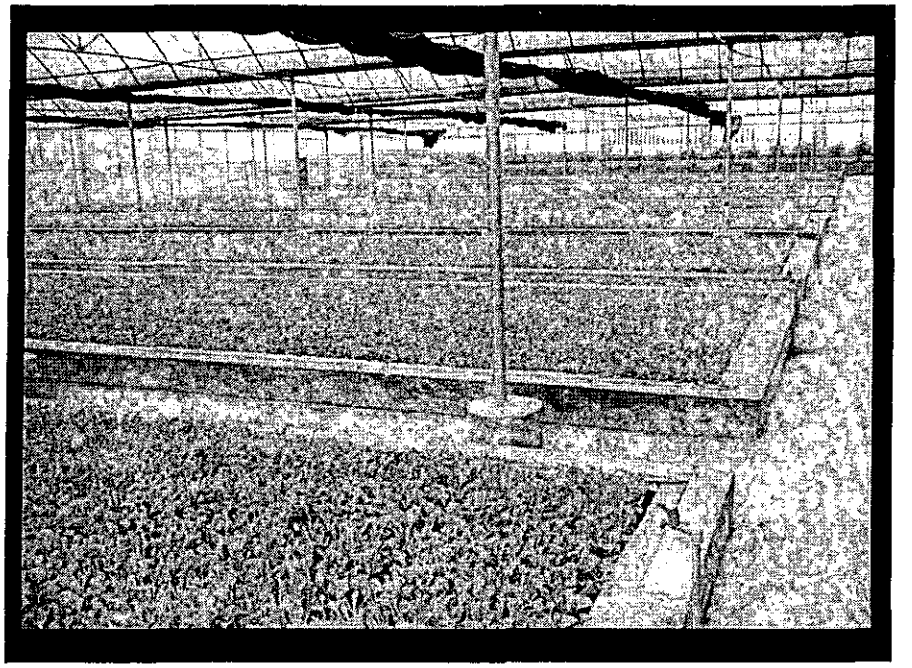


- 绥阳县集约化育苗温室示范中心位于旺草镇下寺村，距县城42公里，占地面积11.5亩，建薄膜温室（B型）面积3840 ㎡。
- 2006年育苗14600盘，可供移栽面积1900亩，育苗盘数14560盘，可供移栽面积1820亩。自主配备了地面硬化、供水系统和大棚断水炼苗系统，以及围墙和绿化。

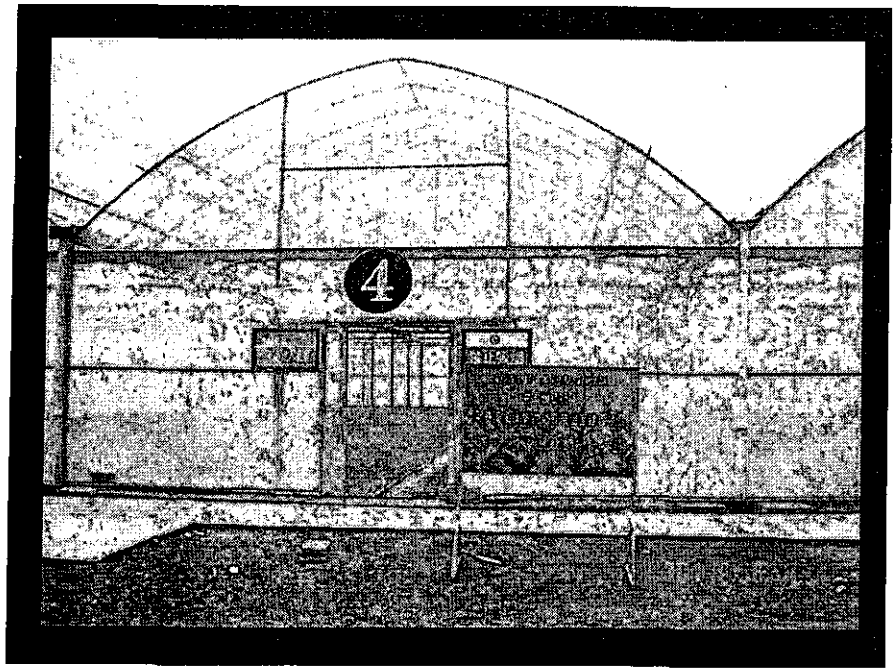



绥阳县甲塞溪海沃育苗示范中心管理规则
进 棚 须 知
大棚管理职责





- 湄潭县集约化育苗温室示范中心位于茅坪镇桂花村，距县城35公里，总占地面积11亩，建有薄膜温室（B型）3840 ㎡，可育苗盘数17600盘，供移栽面积2200亩。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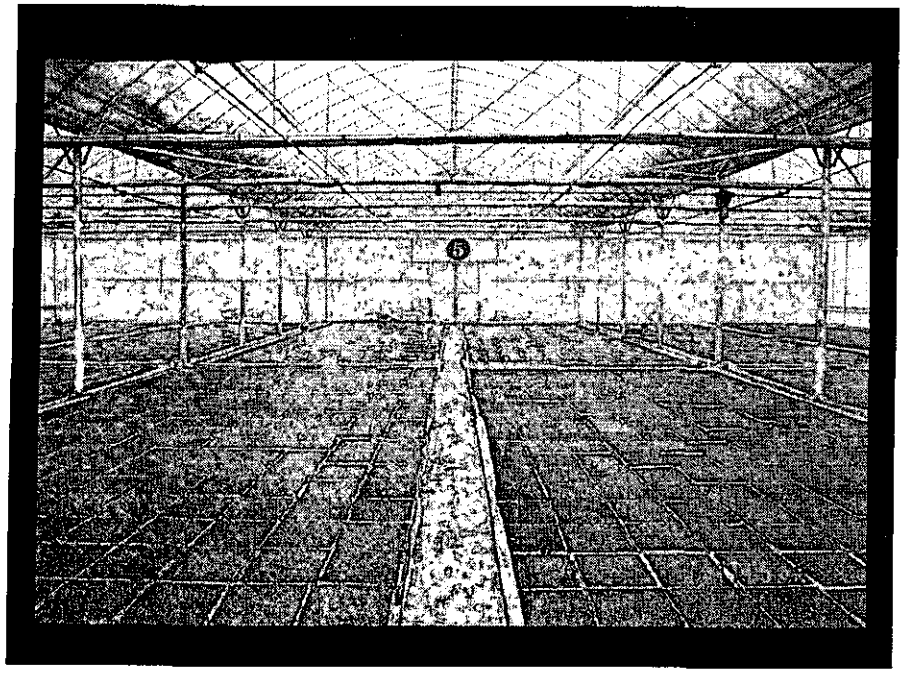
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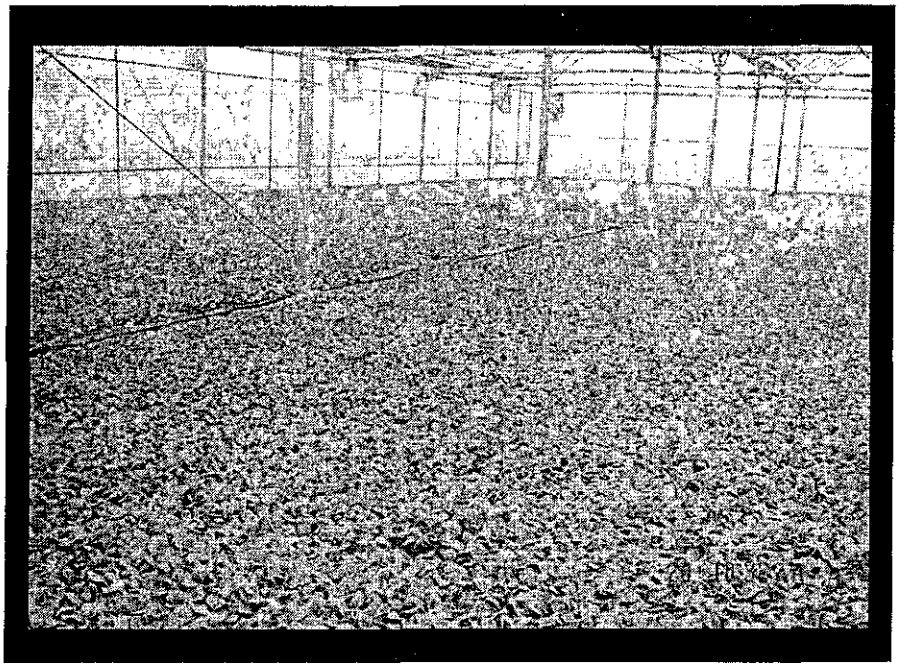
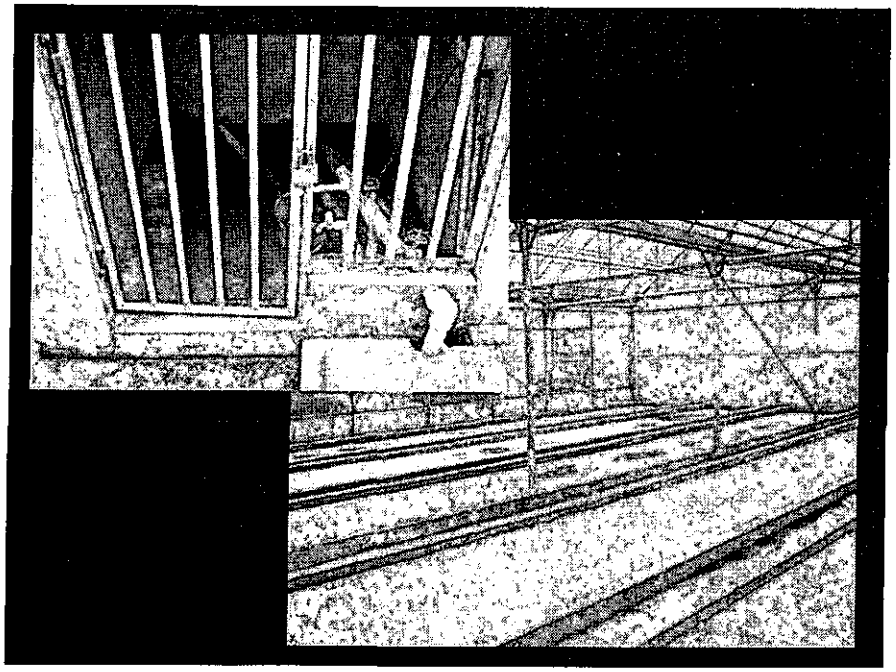
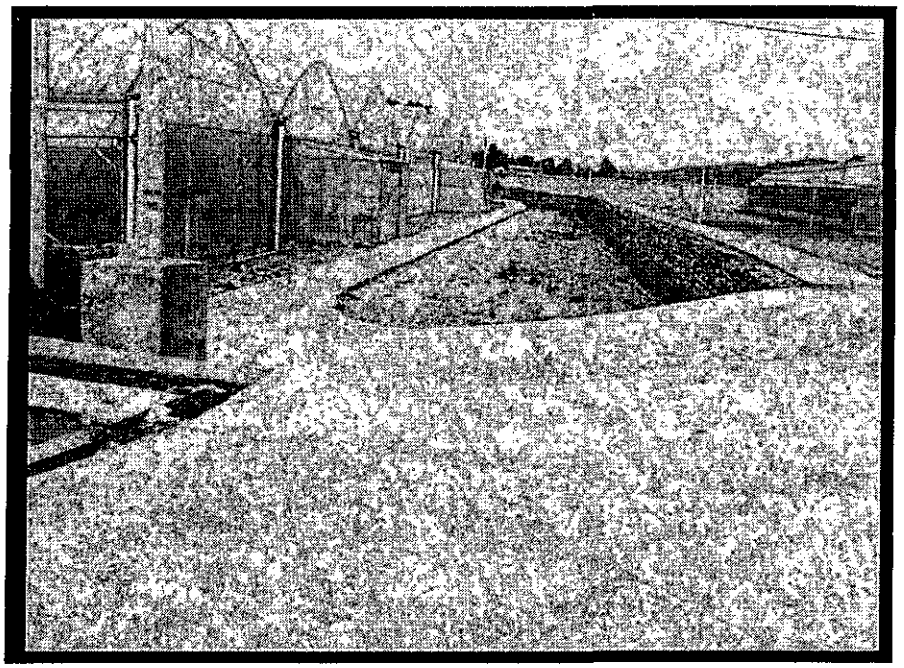


- 绥阳县示范中心对温室育苗供排水设施进行了改造，一方面对育苗池底进行硬化，不再使用底膜，通过一次性投资使育苗成本节约50%以上；另一方面，通过架设管网、增加储水池和抽水机等设施，根据漂浮育苗炼苗操作特点，对育苗用水肥实现循环利用节约成本，同时也避免了育苗用水的随意排放污染环境。



- 遵义市烟草公司在四个中心共配套共投入资金120余万元，用于示范中心配套设施建设，主要包括配套机械、围墙、道路、环境绿化以及工作管理间等。
- 其中：遵义县29万元，桐梓县31万元，绥阳县31万元，湄潭县32万元



使用情况

- 4个示范中心的15360 m^2 薄膜温室（B型）在2006年进行了育苗生产，育苗可供7200亩烟地使用，占全市育苗面积的0.9%；PC阳光板温室（A型）由于承建方的材料到场时间较晚，建成后，已错过育苗期，当年未投入使用。A型和B型棚在2007年全部投入使用，可供大约7500亩烟地用苗需要，育苗成本比小棚和中棚降10%左右。

大棚综合利用

- 遵义县利用A型棚和B型棚开展烤烟灌溉试验，各育苗中心还积极使用育苗温室培育花奔、疏菜、药材、糯玉米等试点，有效提高大棚综合利用效率。

存在的问题

- 1、在室内外温差较大时，遮阳膜在开启时会产生冷凝水滴，防虫网会产生冷凝水，薄膜雾滴不完全规则。
- 2、遵义在育苗期风速不大，同时作为南方烟区空气湿度较高，大棚通风调控能力显得不够。
- 3、产区投入能力有限，希望国际环保组织、国家环保总局、国家烟草专卖局大力支持我市育苗大棚建设。

建　议

- 1、在大棚结构上应结合当地气候和自然环境特点进行设计，以达到节约投资、更具适用性的目的。
- 2、在原有温室的基础上，增加通风口，使温室整体的通风量增加，可有效改善温室内的雾滴现象。
- 3、应配套进行育苗用水、消毒、育苗机具的综合设计和建设。

不当之处请批评指正。谢谢！

Annex Ⅲ

国家烟草行业甲基溴淘汰集约化育苗中心温室大棚建设工程

龙岩市长汀、上杭B型及烟科所A型薄膜温室大棚建设使用情况汇报

福建省烟草公司龙岩市公司

2007、4、15

一、温室大棚建设概况

（一）建设目的：

利用蒙特利尔多边基金赠款，建设烟草育苗温室大棚，示范先进的育苗技术，淘汰育苗过程中甲基溴的使用，达到《蒙特利尔议定书》预定的甲基溴淘汰计划要求，确保国际环保履约的顺利实施。

（二）温室大棚建设规模

1、我市利用蒙特利尔多边基金赠款，分别在长汀县濯田东山、上杭县庐丰安乡、烟科所三个地方建设B型温室大棚16座、A型温室大棚1座。

2、B型温室大棚单座温室面积为768.00㎡，合计面积12288.00㎡；A型温室大棚面积为307.2㎡。

3、长汀、上杭B型温室大棚于2005年10月25—28日动工，2005年12月投入2006年度烤烟育苗。烟科所A型温室大棚于2006年2月投入烤烟育苗试验研究。

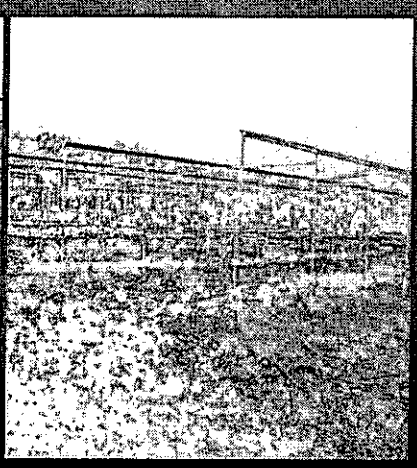
4、温室主体设施

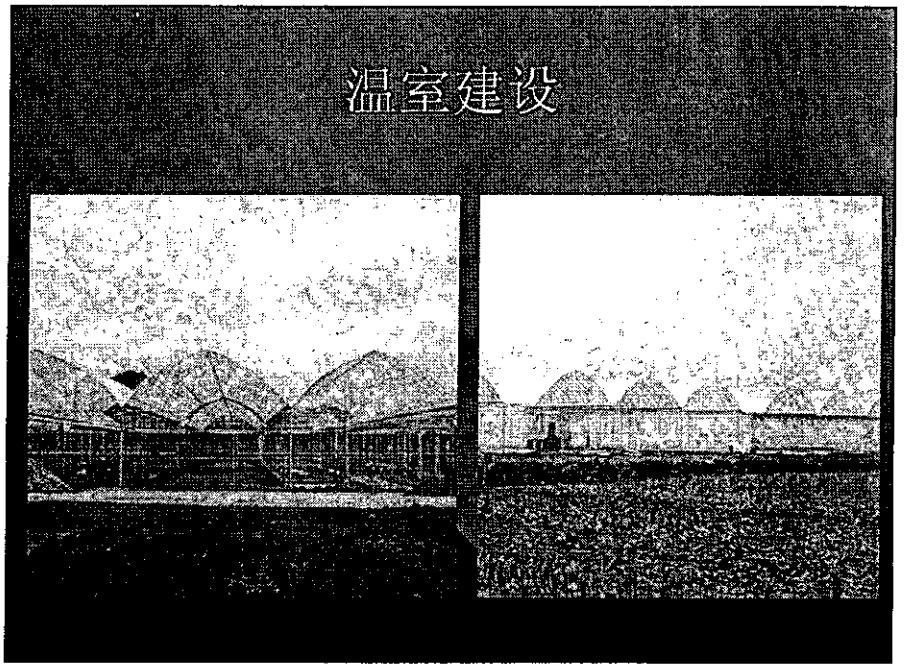
温室大棚配置内遮阳系统、电动卷膜顶通风和侧通风系统、防虫系统、电气控制系统等，对通风、温度、光照等烟苗生长的环境因子进行控制和调节。

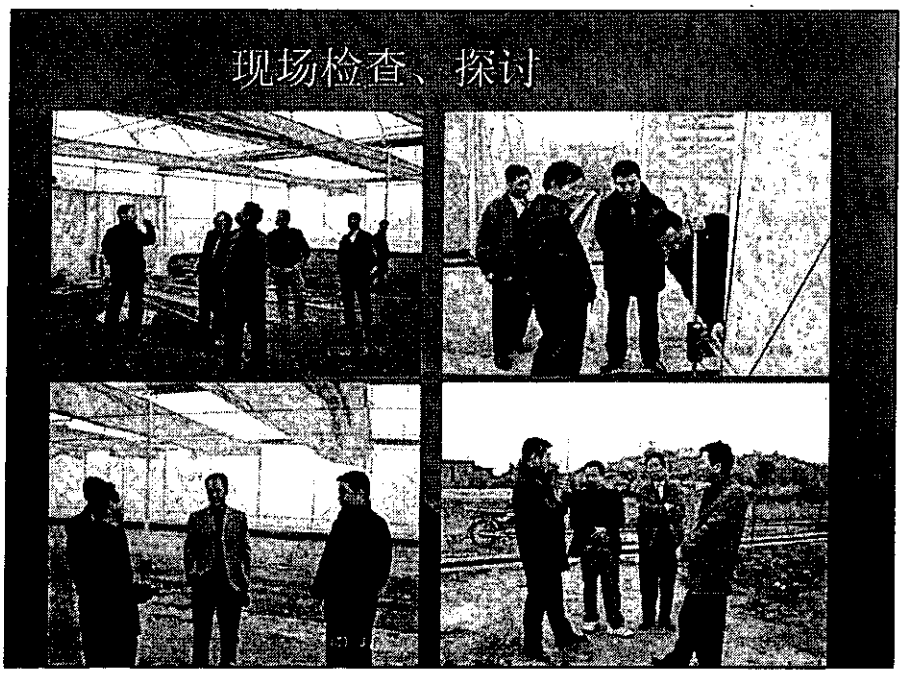
5、温室附属设施

为更好地发挥育苗示范中心的示范推广功能，我司投入配套资金79.2万元(其中:长汀34.2万元，上杭35万元，烟科所10万元)，完善温室的供水、水渠、高压线路、温室四周护网等各项配套设施。

温室建设




温室建设


现场检查、探讨

二、温室大棚使用情况

1、长汀县濯田东山、上杭县庐丰安乡育苗示范中心，各有8座三连体薄膜温室大棚，占地总面积6144 m²；采用漂浮育苗可供2000亩大田用苗；采用湿润育苗可供1600亩大田用苗。

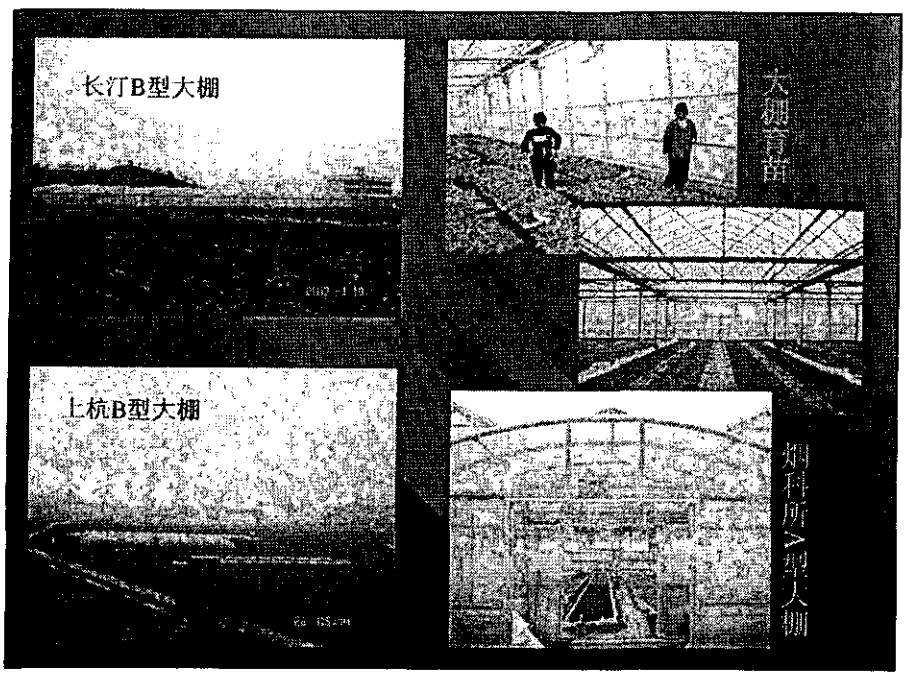
2006年示范中心采用托盘湿润育苗和漂浮育苗方式进行育苗，2007年示范中心全部采用湿润育苗方式供应烟苗。为大田种植提供无病壮苗。

2、温室还可进行育苗新技术、新模式的示范推广，良种繁育、苗期新基质、新药剂等试验。

3、平面温度均匀，温差<0.5度，恒温性好。

4、规范化程度高，有效提高育苗整齐度，缩短苗龄。

5、育苗集中化程度高，利于商品化供苗。




大棚育苗


国家局张玉征副司长视察温室


大棚育成的烟苗


各级领导、专家、同行参观

龙岩市委书记、市长视察温室

三、温室大棚综合利用

温室大棚的综合利用受到多种因素的制约，如温室设备、机械化水平、经验水平、使用成本等。因此，目前仅用于烤烟育苗，部分大棚用于繁种。

制约因素：

（1）功能单一，利用时间短。

（2）育苗机械化水平较低。

（3）集中育苗面积相对较大，供苗难度增加，部分烟农运输成本增加。

（4）大棚内部控制系统及相应框架、元件的日常维护费用较高。

（5）温室卫生、配套设施的日常管理需要一定资金。

（6）育苗成本相对较高。

Annex IV

大理州甲基溴淘汰烤烟漂浮育苗替代技术示范中心建设情况汇报

大理州烟草公司祥云县分公司

2007年6月8日

在国家环保总局、国家烟草专卖局及云南省烟草公司的关心、支持下，按照甲基溴淘汰工作的统一部署和总体要求。将该项目安排在祥云县分公司的程官烤烟漂浮育苗基地，对原建盖的大棚进行改造。工程于2006年11月20日竣工，并已投入使用。现将大棚改造基本情况总结汇报如下：

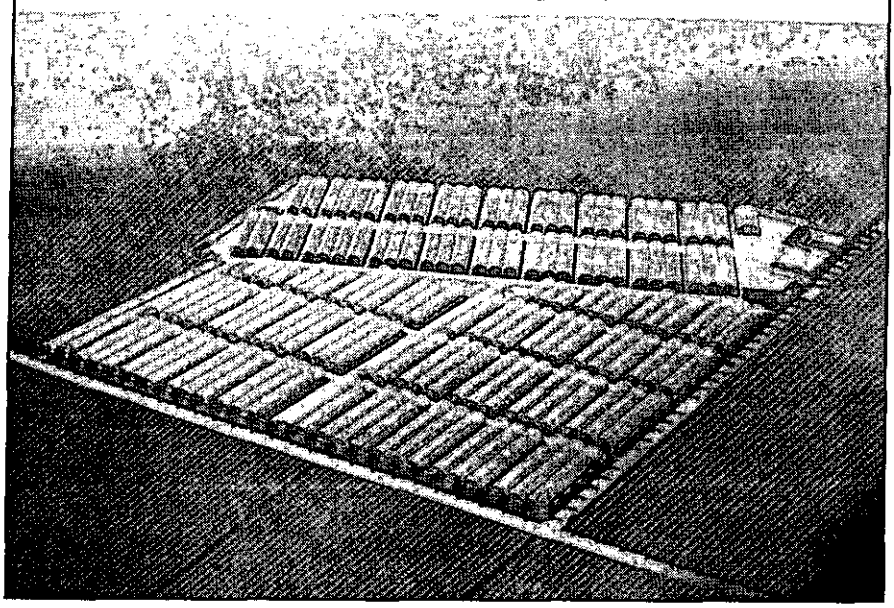
汇报内容

- 大棚群基本情况
- 棚群改造情况
- 棚群改造后的使用现状

一、大棚群基本情况

大棚群位于祥云县城东，交通便利，水源充足，生态环境适宜，大棚占地面积50亩，改造前的大棚为热镀锌结构钢塑大棚，共141个大，其中2联栋棚14个，3联栋棚35个，4联栋棚2个，大棚建筑面积31302平方米，能提供2.1万亩大田烤烟移栽用苗。

大棚鸟瞰图



二、棚群改造情况

（一）项目资金、材料来源

1、资金：利用蒙特利尔多边基金1740450元赠款。

2、材料：由江西农机研究所统一采购，并对该项目进行施工。

（二）改造内容

依据与国家环保总局对外经济合作领导小组办公室签订的《甲基溴淘汰育苗温室建设项目协议书》，程官大棚群改造的主体工程为：

1、更换大棚棚膜；

2、更换内遮阳系统；

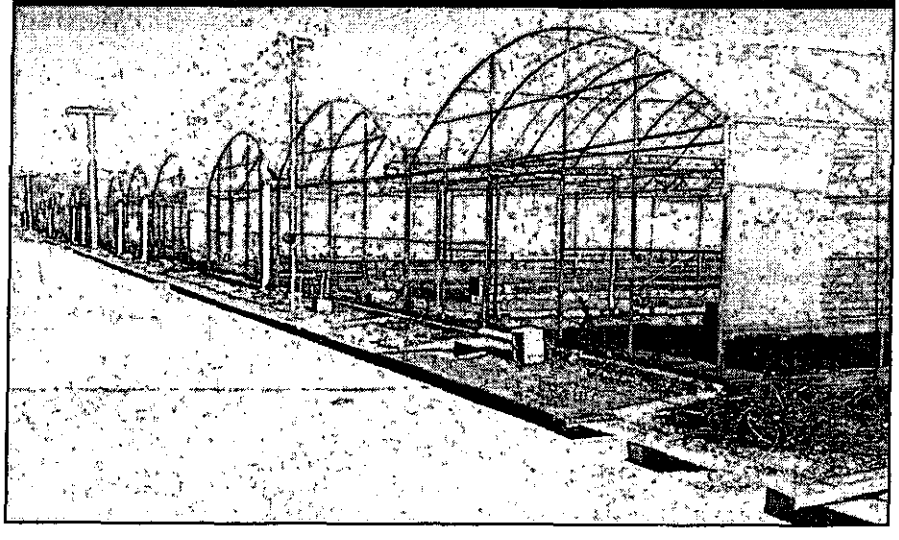
3、更换通风系统（防虫网）；

4、配置电器控制系统。

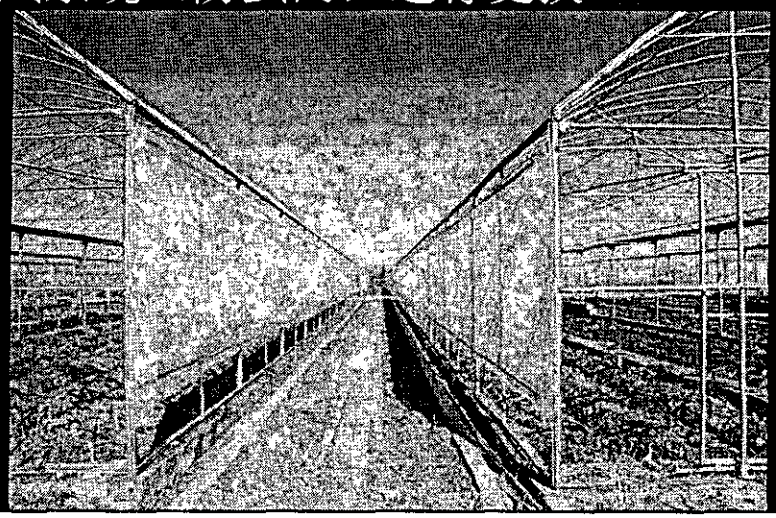
（三）工程项目施工情况

◆2005年11月11日江西农机研究所施工人员就位，对大棚棚膜进行拆除

◆2005年11月25日至12月5日对大棚棚膜进行更换

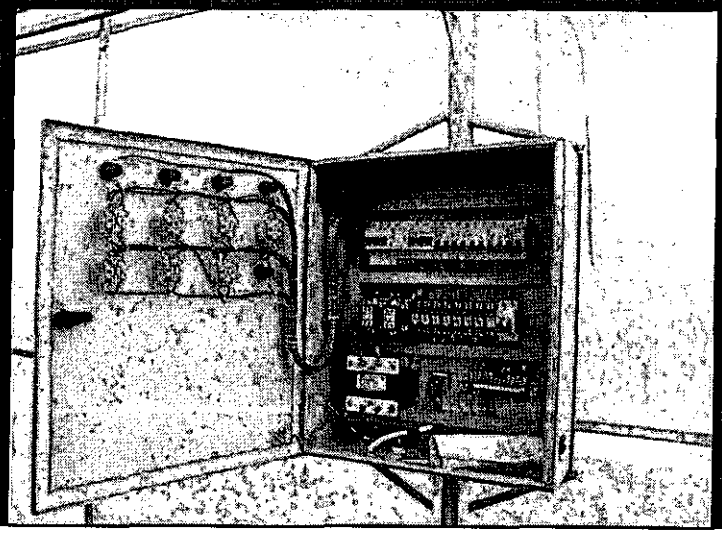


- 2005年11月25日至12月7日对通风系统（防虫网）进行更换



- 2005年12月10日至12月20日对内遮阳系统进行更换

- 2006年1月15日至1月25日对电器控制系统进行安装

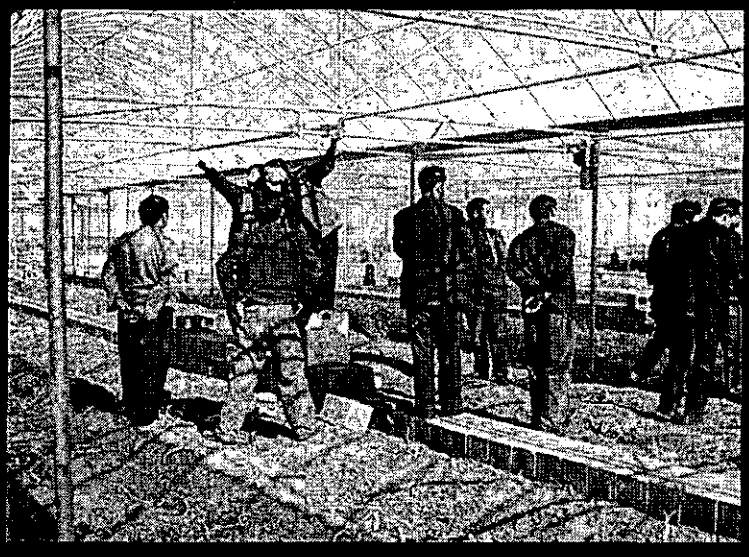


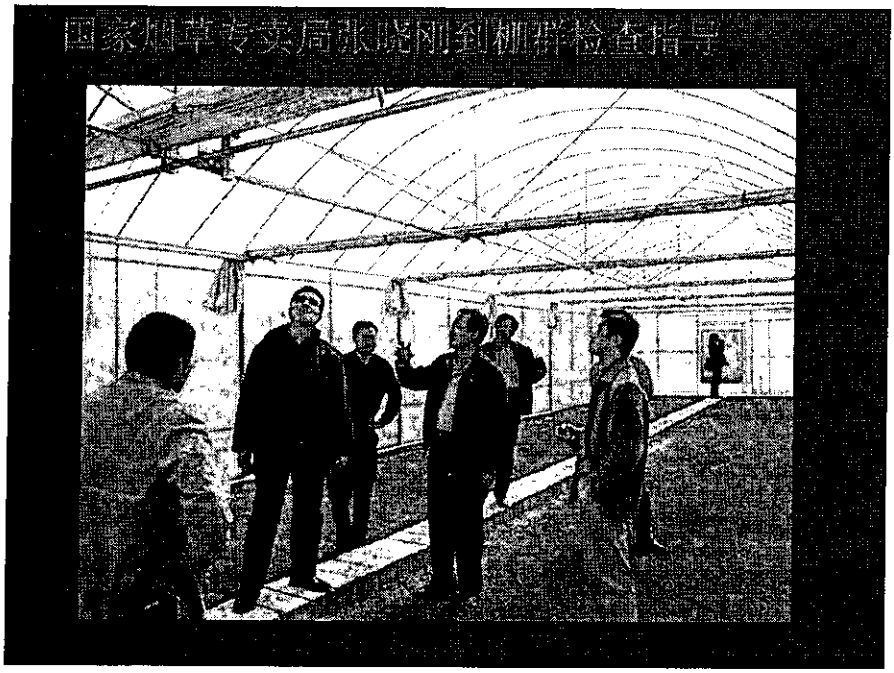
（四）温室建设项目的监督和管理

为确保温室建设项目的顺利实施，大棚改建立项后，国家局专门聘请中国农大的专家史光义教授到我县进行施工技术指导和质量监督管理，确保工程质量。

祥云县烟草分公司领导高度重视，成立了以分公司经理全昀曦为组长，副经理李华明为副组长，生产技术科有关人员为成员的领导组，加强对工程项目的领导和管理。并抽调技术骨干驻守工地，确保工程质量和进度。

中国农大史教授及州公司领导到现场检查指导



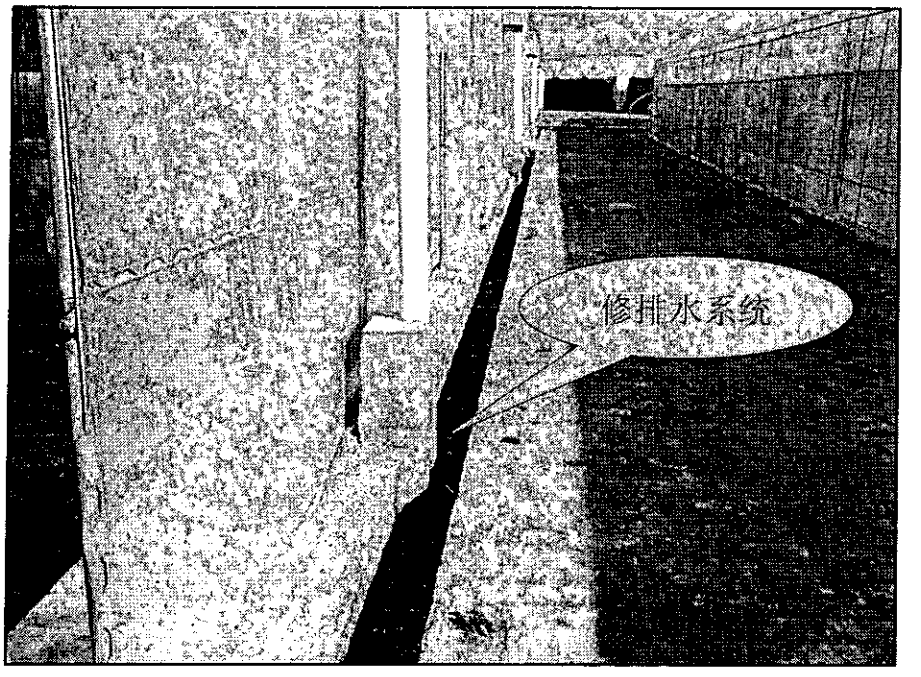


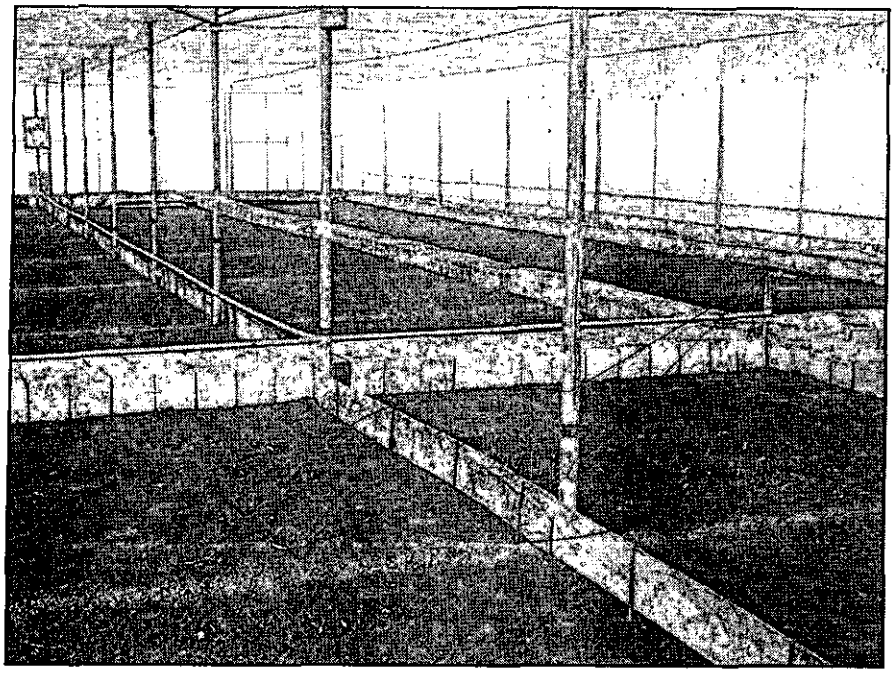
（五）资金匹配及配套设施建设情况

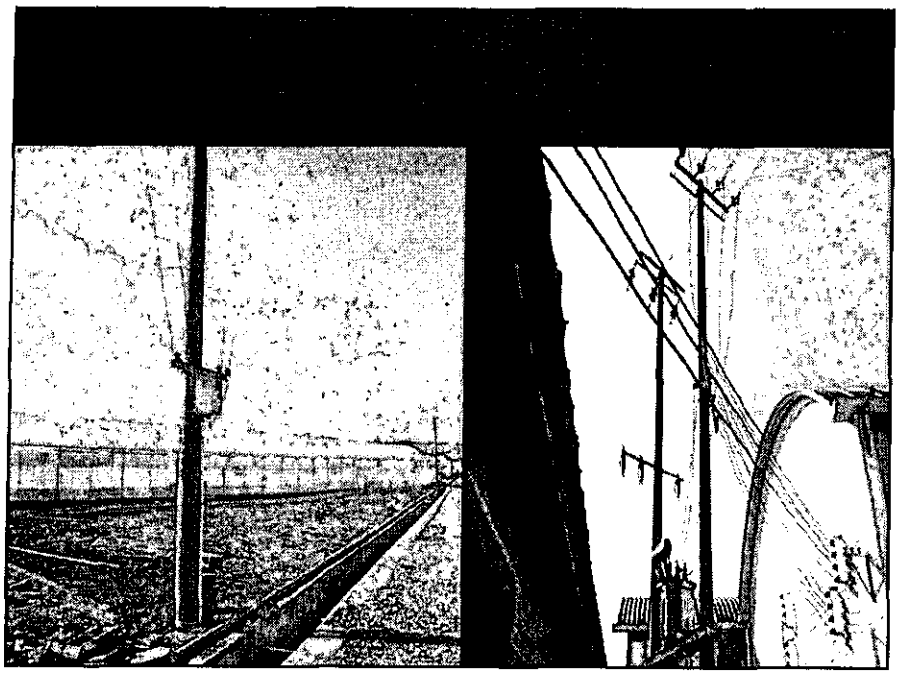
在江西农机研究所对主体工程进行改造的同时，根据大棚改造配套要求及标准化育苗示范中心建设的需要，祥云烟草分公司又匹配投入了596101.74元资金,对大棚基础设施进一步完善。

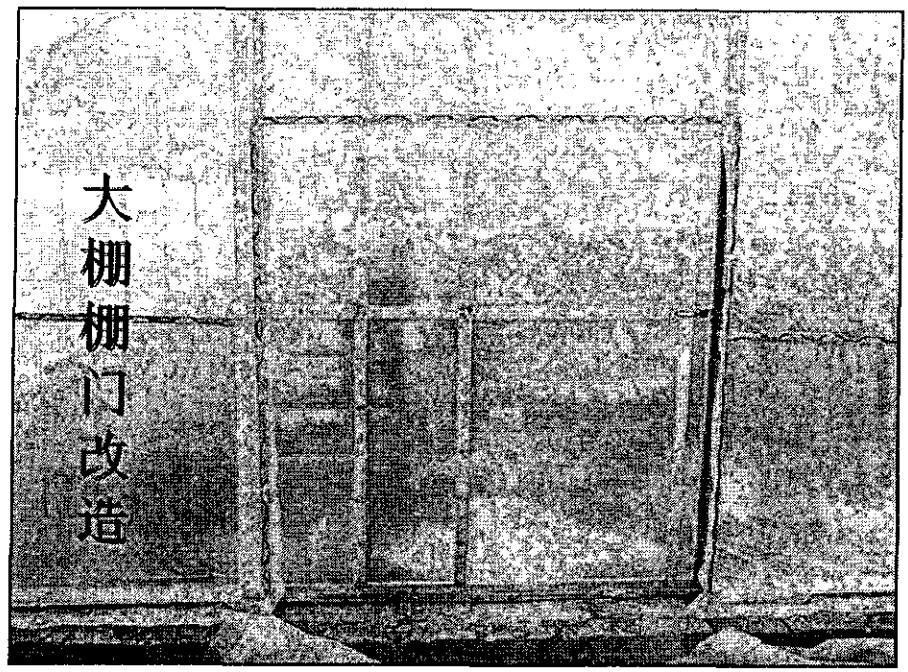
附属设施建设包括：

1、建营养池埂
2、建围墙
3、棚门改造
4、电路改造
5、水管建设与维修
6、新修排水系统
7、铺地坪
8、大棚绿化









三、棚群改造后的使用现状

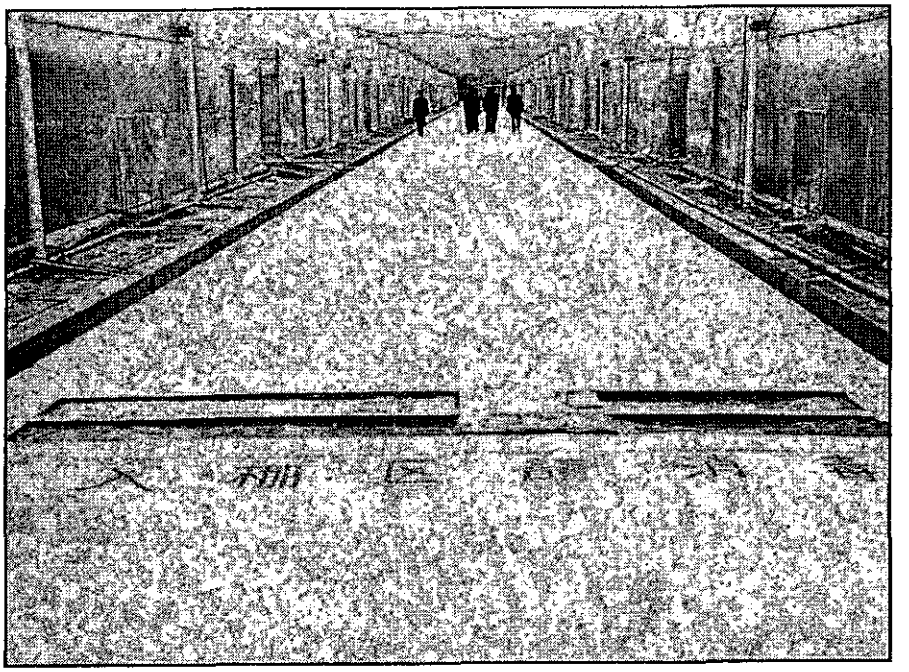
烤烟漂浮育苗

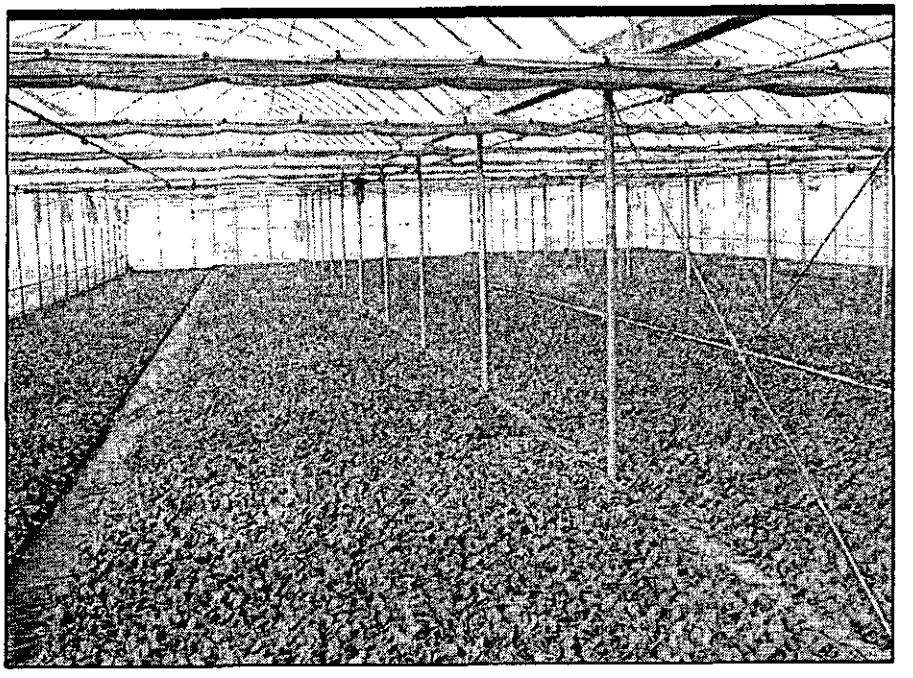
温室综合利用

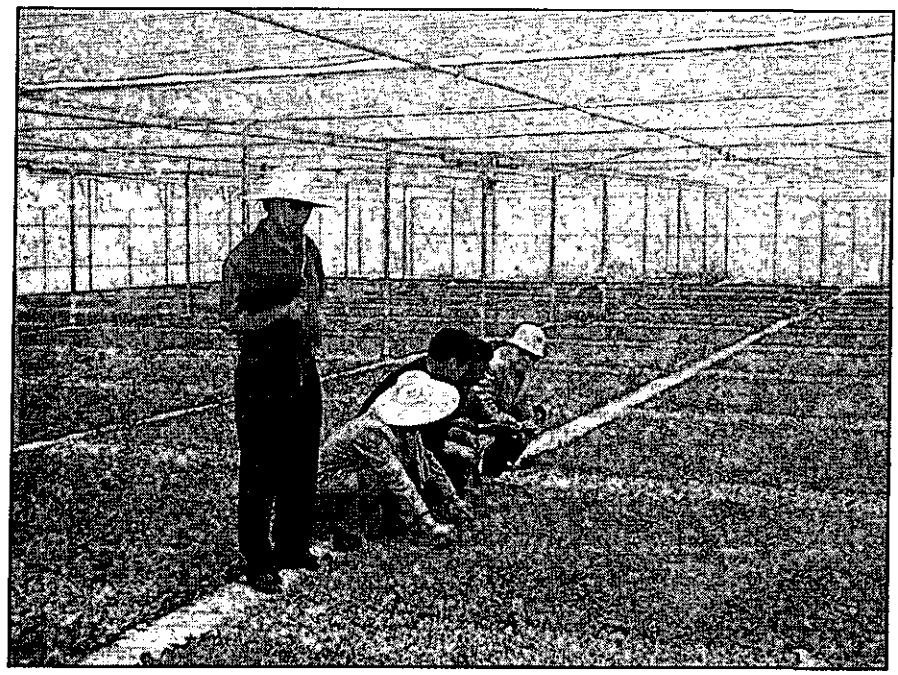
（一）烤烟漂浮育苗情况

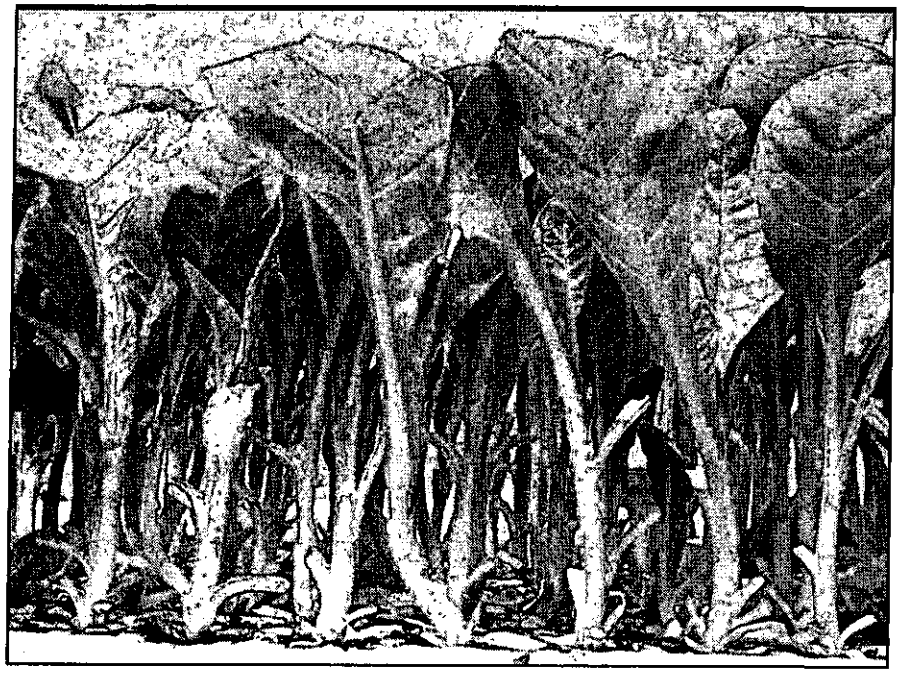
改造后的大棚保温保湿性能大幅度提高，提高了出苗速度和出苗率，烟苗生长整齐、茁壮。自动化控制系统不仅操作简单，又节约了育苗成本和劳动强度，实现了集约化、工厂化及商品化的育苗模式。

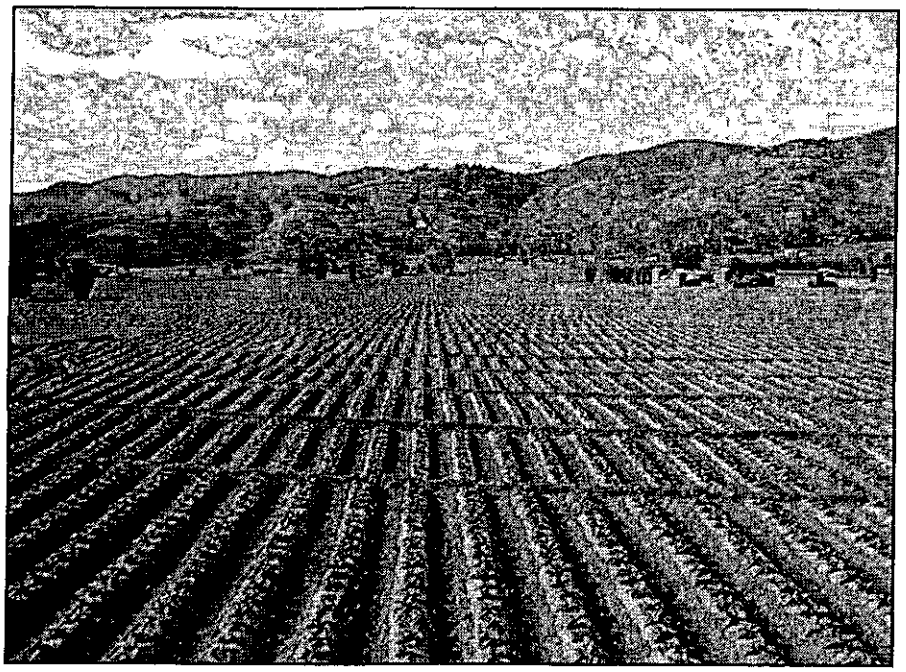
借助棚群本身的优势，加之育苗过程中加强对温湿度、病虫害防治、剪叶技术等方面的精心管理，2007年该大棚群共培育漂浮苗16万盘，烟苗素质达到了高茎壮苗标准，可供2.1万亩大田移栽。









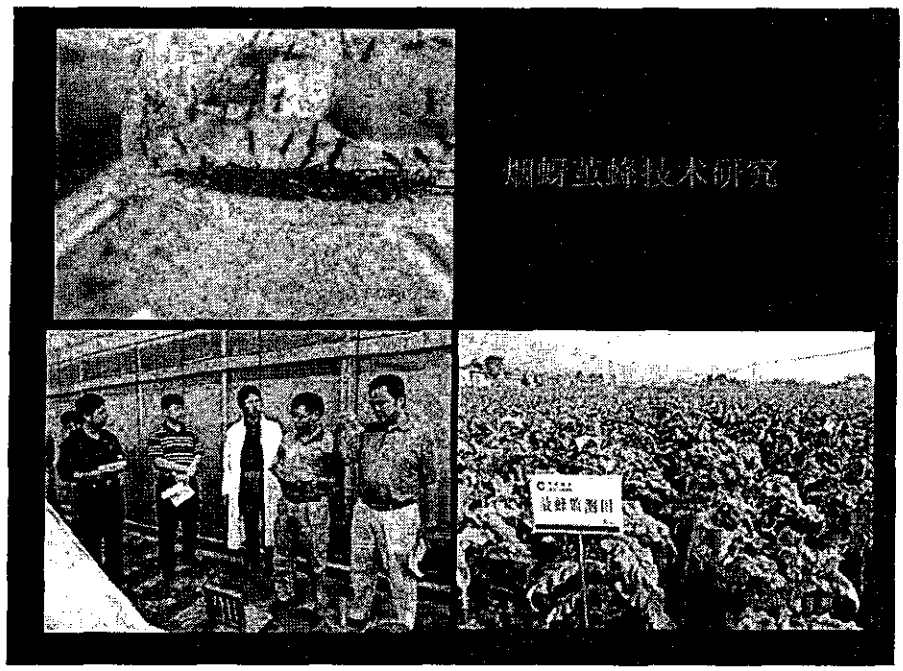


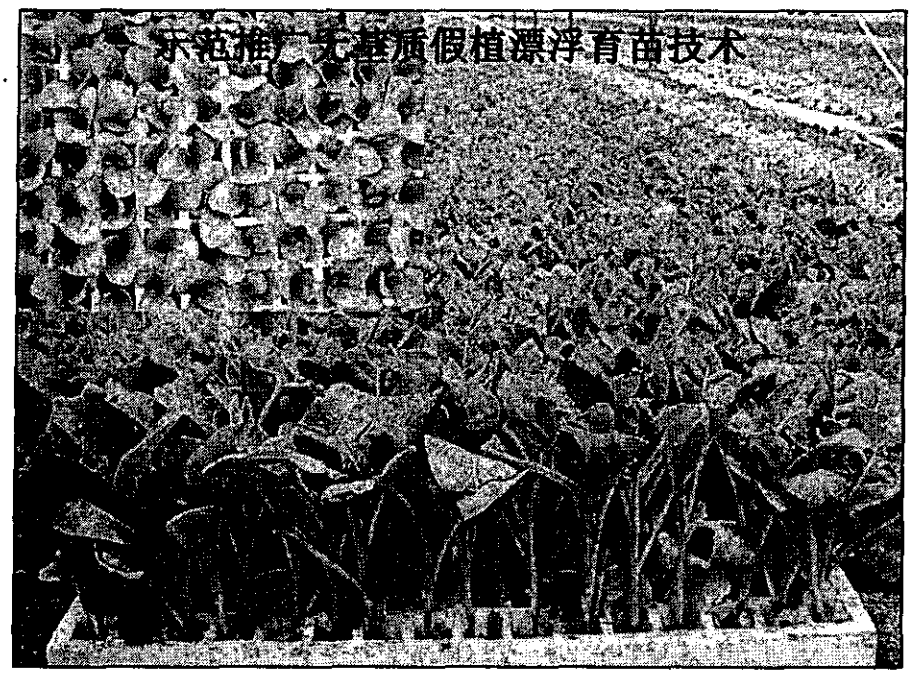

提高了祥云县烤烟生产整体水平

（二）温室的综合利用

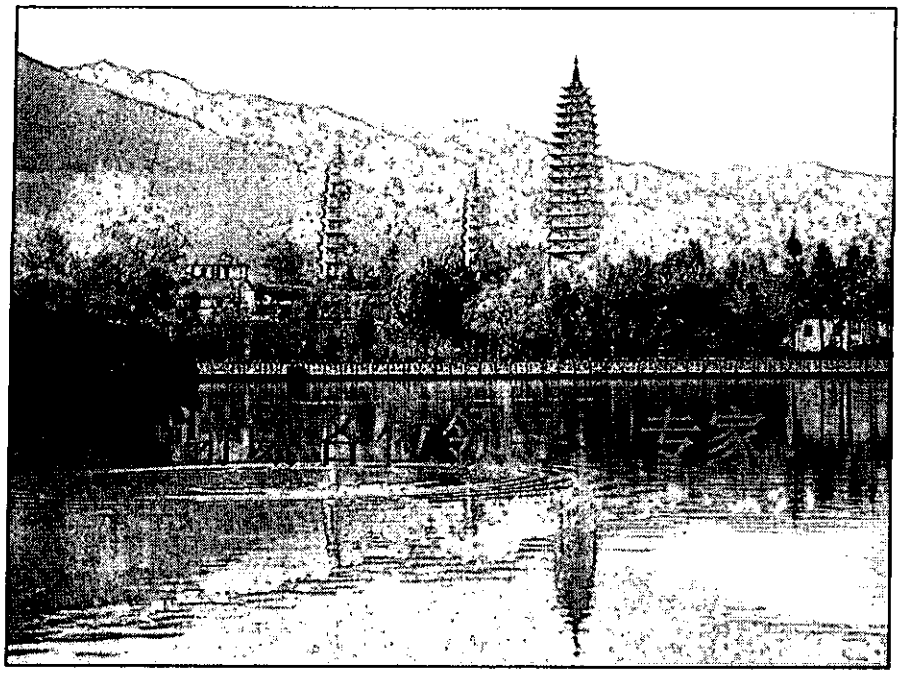
程官大棚群是我县建设最早的一个棚群，辖区内烤烟生产水平较高，棚群周围又配套了标准化烘烤示范基地，对我县的烤烟生产起着带动和辐射作用。目前，在示范中心除培育大田用苗外，还开展了以下科研项目。

1、开展烟草主要病害综合治理技术集成与示范推广；
2、开展漂浮育苗病毒病检测和病害防控技术研究；
3、开展烟蚜茧蜂养殖及散放技术研究；
4、开展烤烟漂浮育苗剪叶配套技术研究；
5、开展无基质假植漂浮育苗技术试验示范；
6、开展漂浮育苗大棚综合利用技术研究。


烟蚜蚧蜂技术研究


示范推广无基质假植漂浮育苗技术

总之，改造后的棚群已成为祥云县目前环境、设施最好的棚群，我们将充分利用其优势，把它作为烤烟漂浮育苗综合配套技术的研发和培训基地，以促进漂浮育苗技术的不断进步和发展，淘汰甲基溴，保护环境。



Annex V

国际多边基金赠款项目

中国烟草行业甲基溴淘汰集约化育苗中心建设情况汇报

湖北·恩施

二〇〇七年十一月

国际多边基金赠款项目

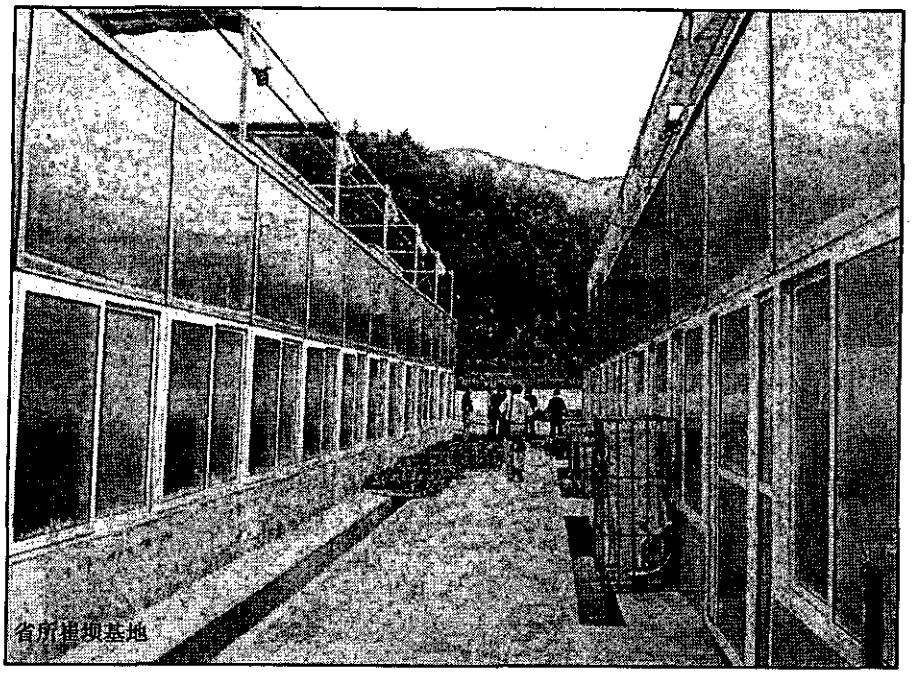
项目目的：

履行蒙特利尔多边基金·中国消费行业（烟草行业）甲基溴整体淘汰计划-中国烟草行业甲基溴淘汰育苗温室建设转赠项目协议，实现烟草行业烟叶育苗最终淘汰甲基溴。

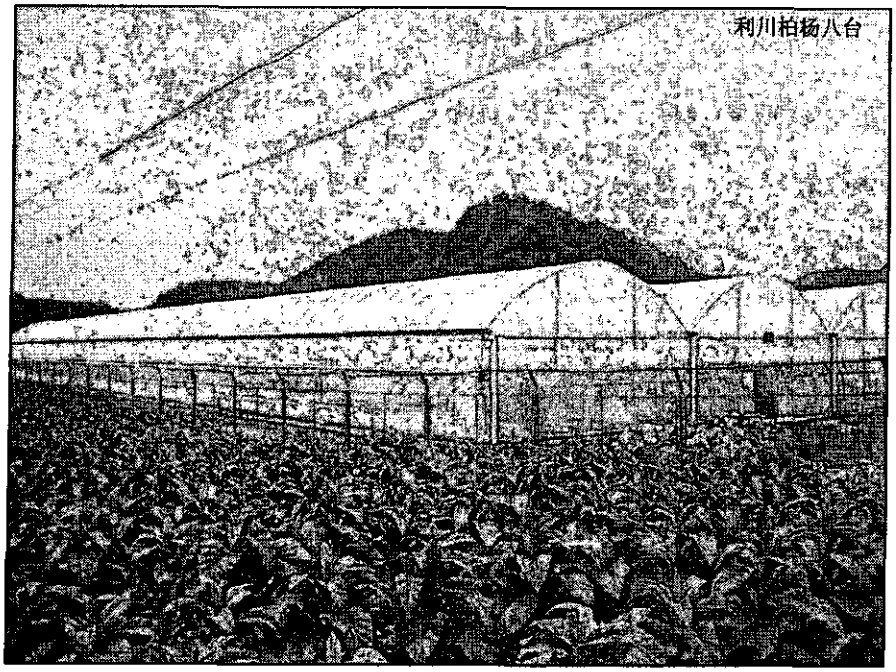
国际多边基金赠款项目

温室建设规模

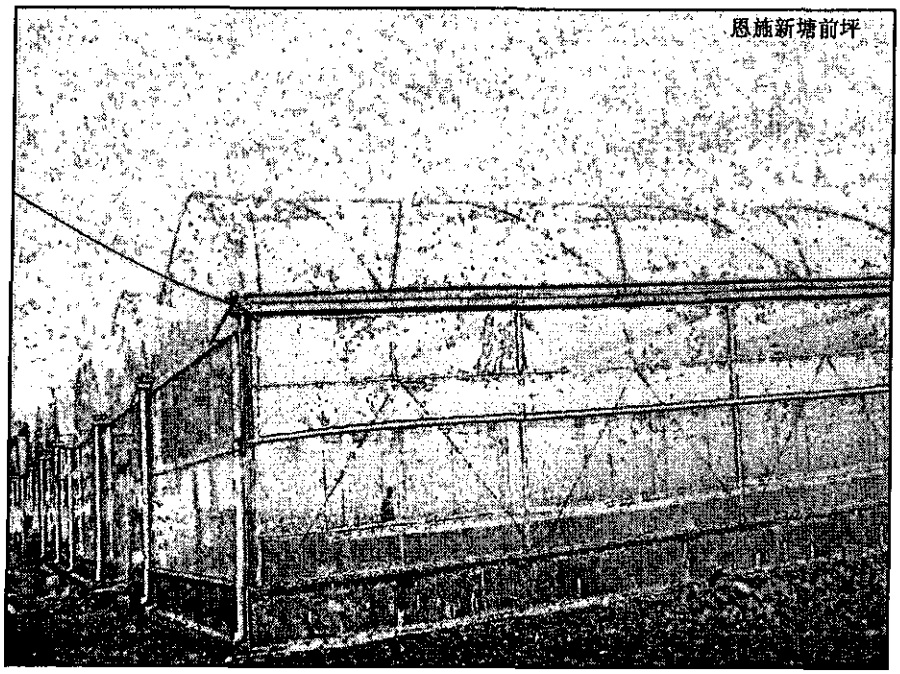
- A型棚：
  湖北省烟草科研所恩施崔坝科研基地（PC板）614.4m²；
- B型棚：
  恩施市新塘前坪 (连栋薄膜温室)3×24×64＝4608m²；
  利川市柏杨八台 (连栋薄膜温室) 3×24×64＝4608m²；
  鹤峰县中营岩屋 (连栋薄膜温室) 3×24×48＝3456m²。



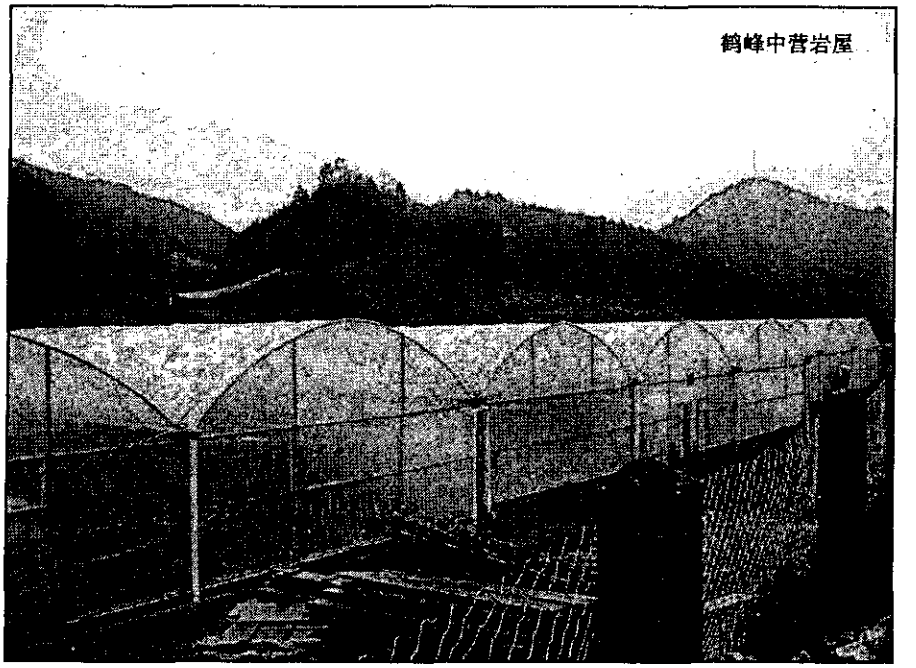
省所崔坝基地



利川柏杨八台



恩施新塘前坪



国际多边基金赠款项目

温室基础：

基础高0.3m，温室基础采用钢筋混凝土基柱顶部预埋螺栓，与上部钢柱连接，由江西省进贤绿佳温室工程有限公司提供图纸，县市烟叶分公司组织施工 。

国际多边基金赠款项目

温室主体：

由湖北省烟草专卖局根据《中华人民共和国招标投标法》进行公开招标，江西省进贤绿佳温室工程有限公司中标 。包括主体骨架、覆盖材料、连接材料、电动通风系统、自动喷淋系统、内遮阳系统、防虫系统、配电和控制系统等。

国际多边基金赠款项目

- 附属设施

由县市烟叶分公司组织施工，含围墙或防护栏、仓库、育苗池及路面平整等。

国际多边基金赠款项目

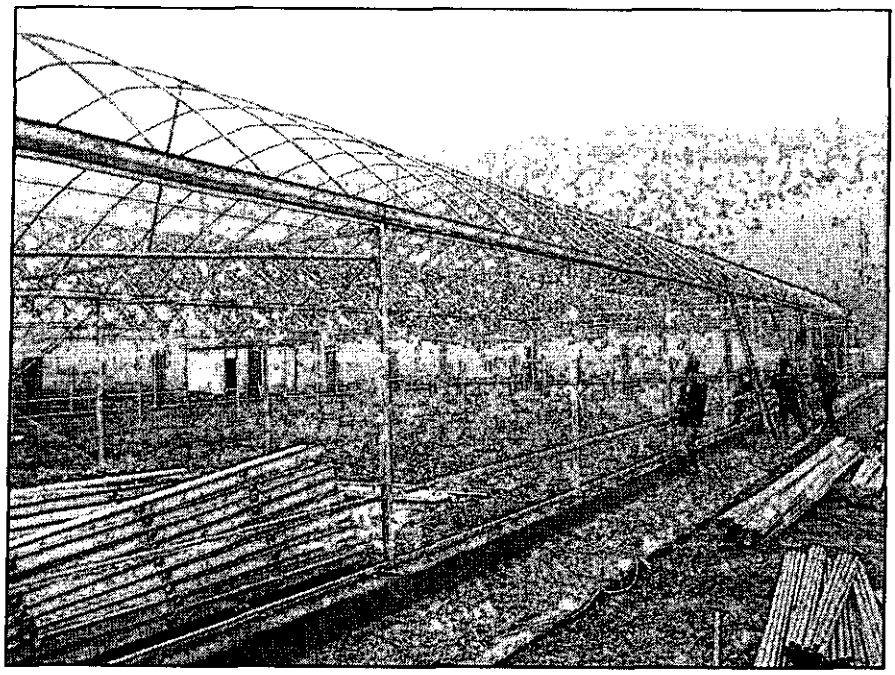
建设过程

- 2005年向国家局申报建设方案，国家局批复后立即征用了土地，2006年12月18日省局完成了工程招标后，省烟草科研所、州烟草公司与江西省进贤县绿佳温室工程有限公司分别签订了工程建设合同，温室公司迅速派人到建设工地进行了实地查看，并提供了修改后的基础施工图。按照基础施工图，县市烟叶分公司先后进行了基础工程招标及施工，于2007年元月28日完工，并通知温室公司进场进行温室主体安装。

国际多边基金赠款项目

建设过程（续）

- 温室公司于2007年2月4日开始安装，于3月20日完成工程安装调试，并及时经县市公司和州公司验收后投入育苗使用。2007年5月10－13日，省局科技处、监察处邀请华中农业大学、中南民族大学两位教授作为专家组成员对工程进行了现场验收。



国际多边基金赠款项目

- 温室建设租用土地

三地共租用土地21773.4m^2，土地租用期限10年，共支付土地租金12.90万元；

国际多边基金赠款项目

- 温室基础及附属设施

省烟草科研所温室建设基础工程投入16.55万元；州烟草公司温室建设基础工程及附属设施投入资金147.18万元，其中恩施市66.11万元、利川市47.87万元、鹤峰县33.20万元。

国际多边基金赠款项目

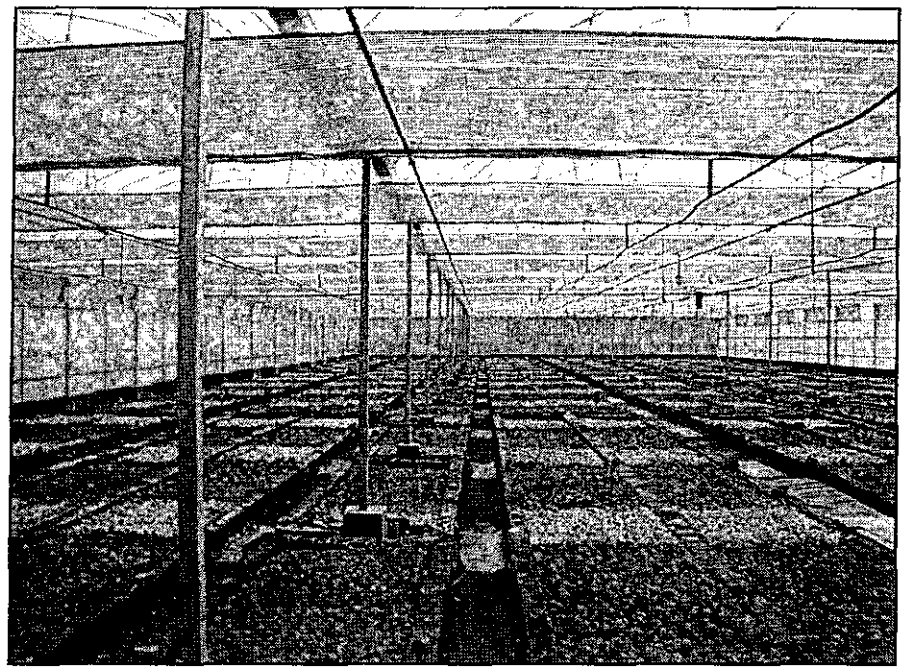
- 温室主体

根据招投标结果和工程建设合同，省烟草科研所温室主体投入**58.54**万元，州烟草公司温室主体共投入**209.36**万元。

国际多边基金赠款项目

运行效果

- **1**、烟叶育苗。**2007**年育苗温室大棚基地共育苗**10138 m²**，提供**330**公顷烟叶移栽所需烟苗；烟苗素质高，达到了培育壮苗的目的；
- **2**、设备运行情况。经过烟叶育苗使用及后续利用，设备运行符合工程施工合同的要求，运转正常；
- **3**、温室育苗基地管护。温室管护由县市公司指定专人(委托烟站或烟农)进行管护；



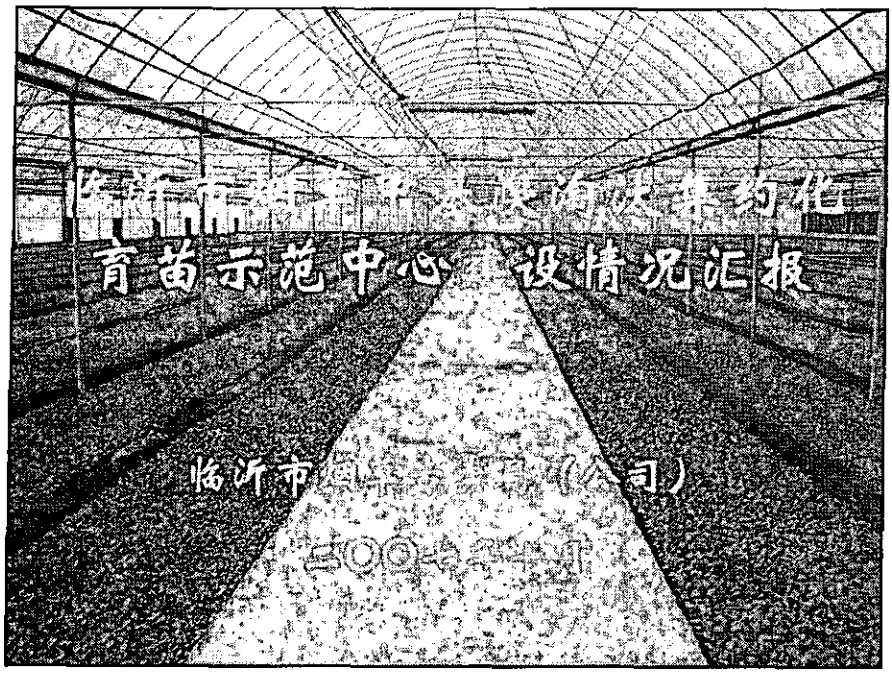
国际多边基金赠款项目

运行效果（续）

- 4、后续利用。为实现以棚养棚，降低运行成本，部分温室进行了后续利用，主要用于反季节蔬菜种植和特色果品种植;
- 5、国际公约履行情况。湖北省恩施州烟叶生产上从2006年停止采购甲基溴，对库存的甲基溴当年用完，2007年烟叶育苗停止使用甲基溴，比规定的2008年停止使用提前1年。

国际多边基金赠款项目

Annex VI

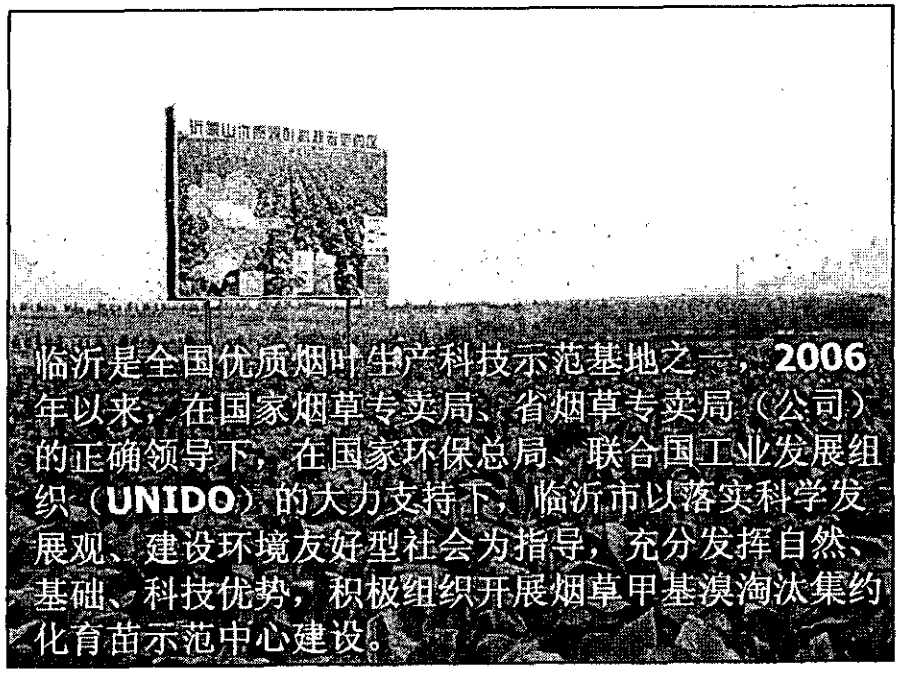


汇报内容

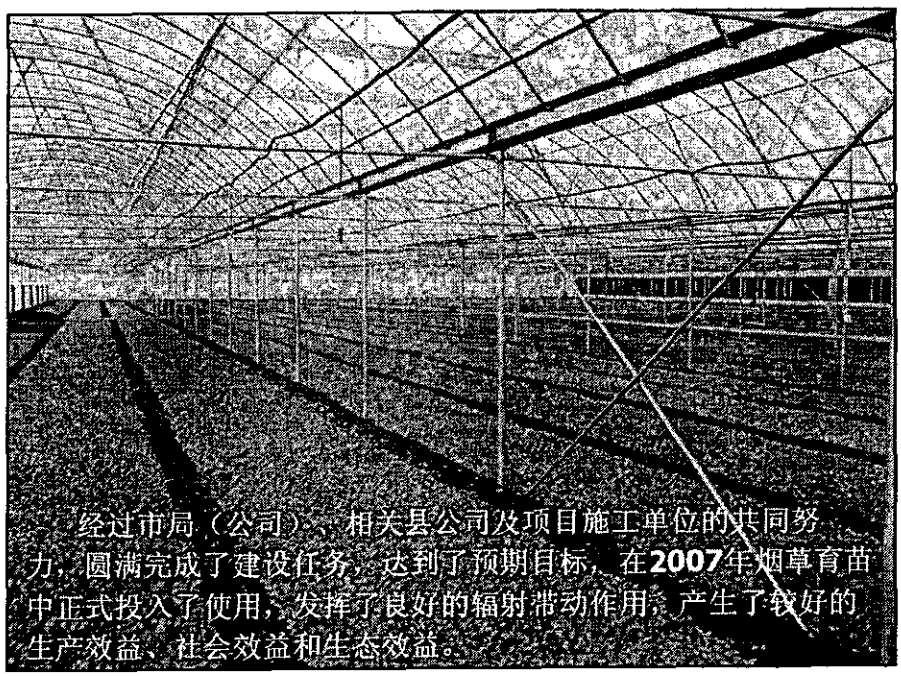
一、育苗示范中心建设基本情况

二、采取的主要措施

三、下步的工作打算

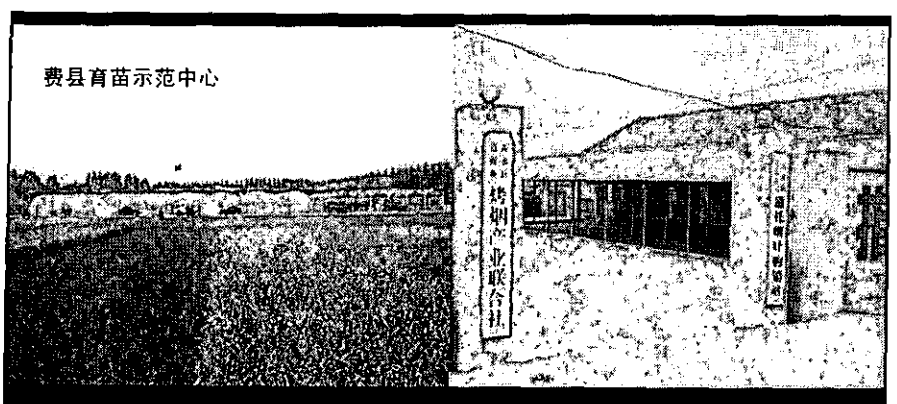


临沂是全国优质烟叶生产科技示范基地之一，2006年以来，在国家烟草专卖局、省烟草专卖局（公司）的正确领导下，在国家环保总局、联合国工业发展组织（UNIDO）的大力支持下，临沂市以落实科学发展观、建设环境友好型社会为指导，充分发挥自然、基础、科技优势，积极组织开展烟草甲基溴淘汰集约化育苗示范中心建设。



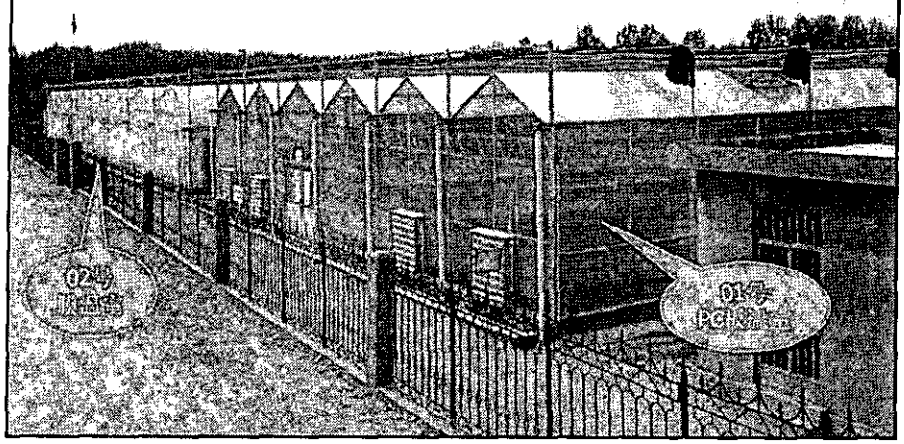
经过市局（公司）、相关县公司及项目施工单位的共同努力，圆满完成了建设任务，达到了预期目标，在2007年烟草育苗中正式投入了使用，发挥了良好的辐射带动作用，产生了较好的生产效益、社会效益和生态效益。

一、育苗示范中心建设基本情况

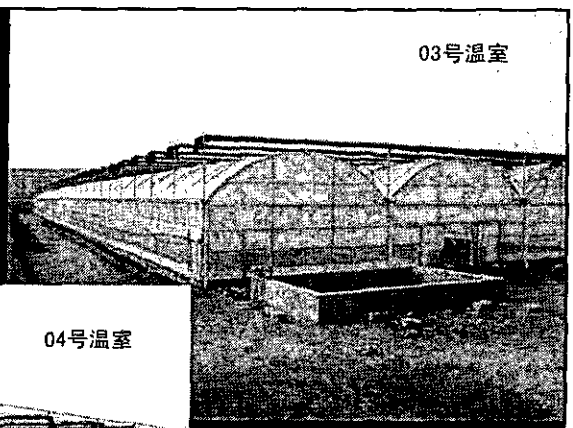


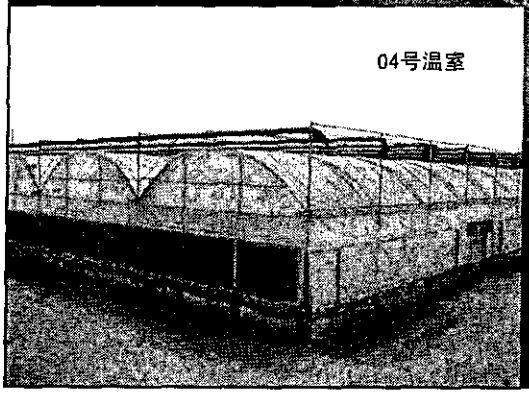
临沂烟草甲基溴淘汰集约化育苗示范中心共计2处，分别位于费县朱田镇北小山村和沂水县道托烟站，温室总建设面积**12224m²**，

其中，**PC板高档温室1栋，面积1056m²，位于费县；薄膜温室3栋，总面积11168 m²，其中费县02号温室6656 m²，**



沂水03号温室2976 m²，

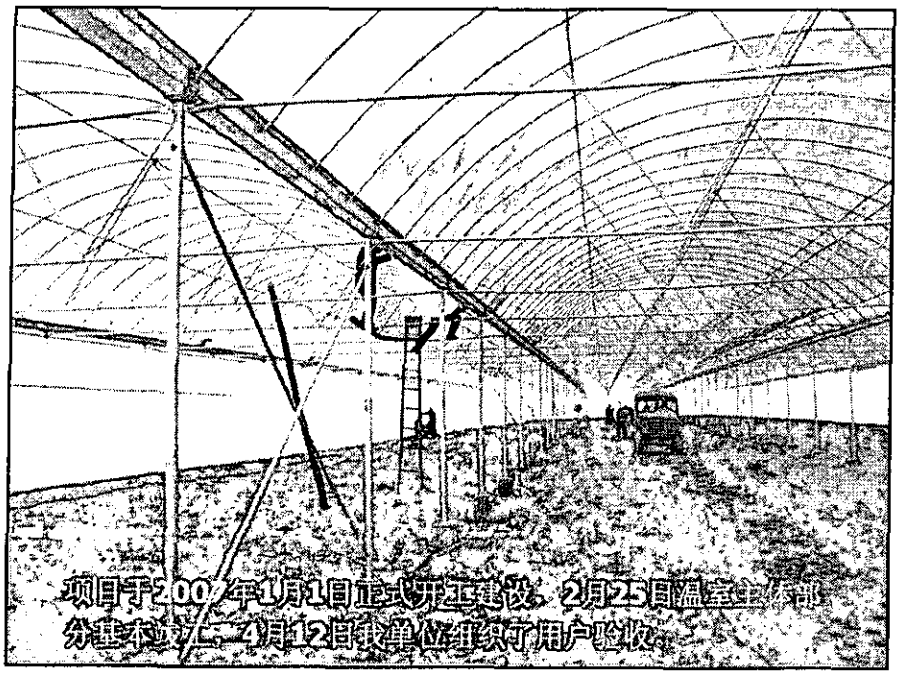




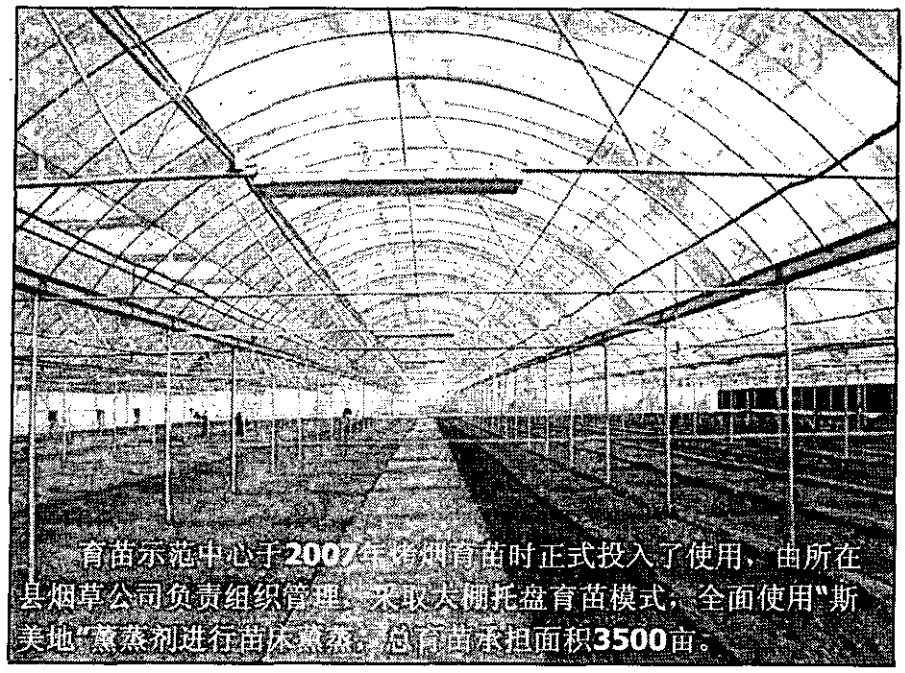
沂水04号温室1536 m²。

两处育苗示范中心、4栋温室的主体部分总投资为258.5万元，其中

- PC板温室主体部分造价58.58万元，平均造价554.73元/ m^2；
- 3个膜温室主体部分总造价199.92万元，平均造价179.01元/ m^2。

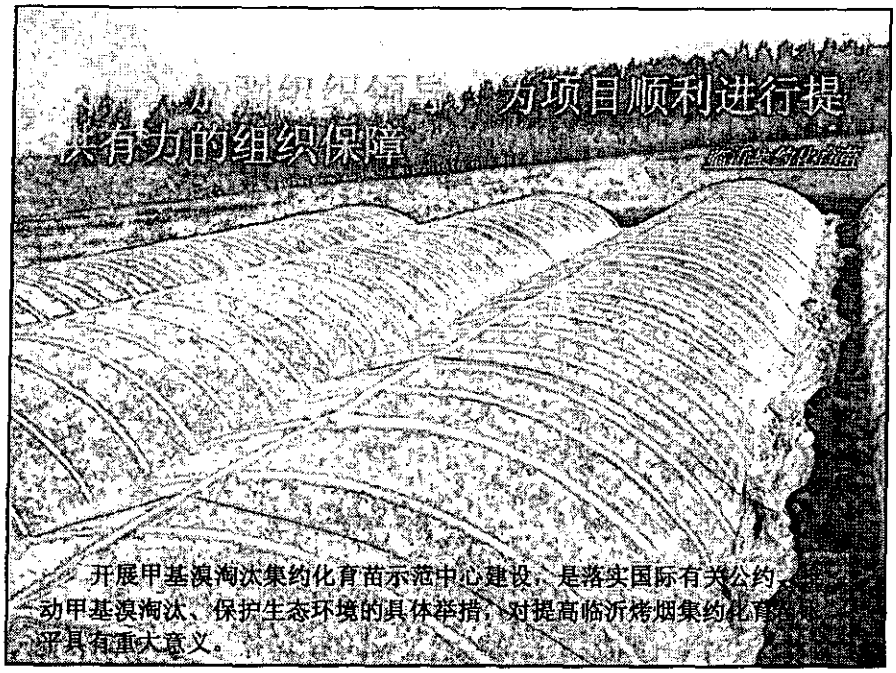


项目于200?年1月1日正式开工建设，2月25日温室主体部分建成并于200?年?月?日我单位组织了用户验收。



育苗示范中心于2007年烤烟育苗时正式投入了使用，由所在县烟草公司负责组织管理，采取大棚托盘育苗模式，全面使用"斯美地"熏蒸剂进行苗床熏蒸，总育苗承担面积3500亩。

二、采取的主要措施



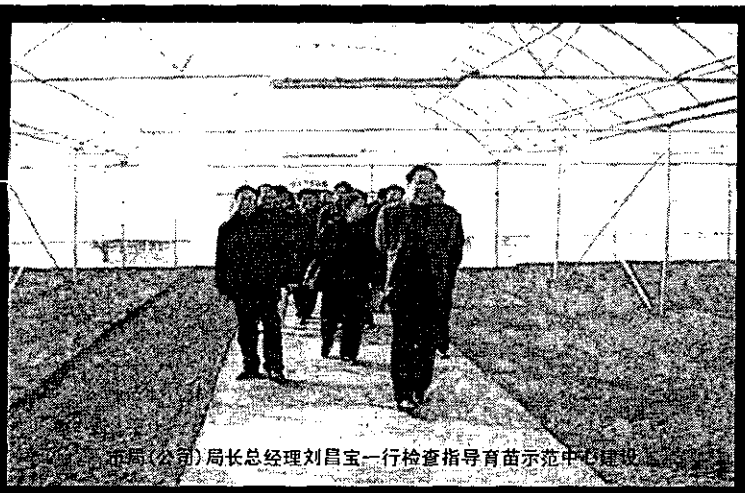
开展甲基溴淘汰集约化育苗示范中心建设，是落实国际有关公约，推动甲基溴淘汰、保护生态环境的具体举措，对提高临沂烤烟集约化育苗水平具有重大意义。

省局（公司）王彦亭总经理视察育苗示范中心

省局科技[illegible]育苗中心建设

山东烟草各级高度重视，省烟草专卖局（公司）领导，科技处及省烟叶公司等处室有关领导多次检查指导临沂烟草育苗示范中心建设情况，省公司科技处经常调度并做好相关协调工作。

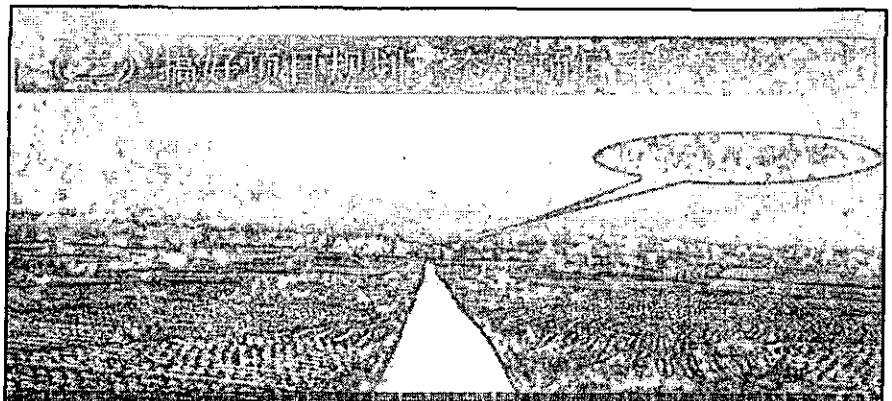
省局烟叶公司[illegible]来检查指导育苗中心建设



市局（公司）局长总经理刘昌宝一行检查指导育苗示范中心建设

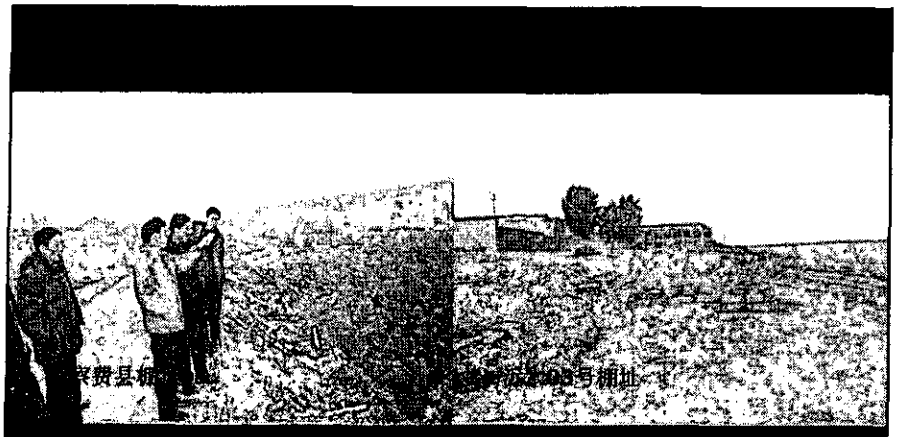
临沂市局（公司）成立了由主要领导任组长，分管领导任副组长，烟叶生产技术部、沂水公司、费县公司负责人为成员的临沂烟草集约化育苗示范中心建设领导小组，全面负责育苗示范中心建设、育苗组织，以及甲基溴淘汰实施情况的规划、调度、监督、检查。

落实责任制度，市局（公司）烟叶生产技术部全面负责，两县公司各明确一名副经理具体靠上抓项目落实，确保了临沂育苗示范中心建设的顺利进行和圆满完成。



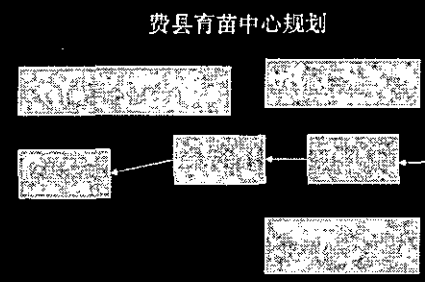
按照国家烟草专卖局的部署，临沂市于2005年对育苗示范中心建设项目进行了初步规划论证。

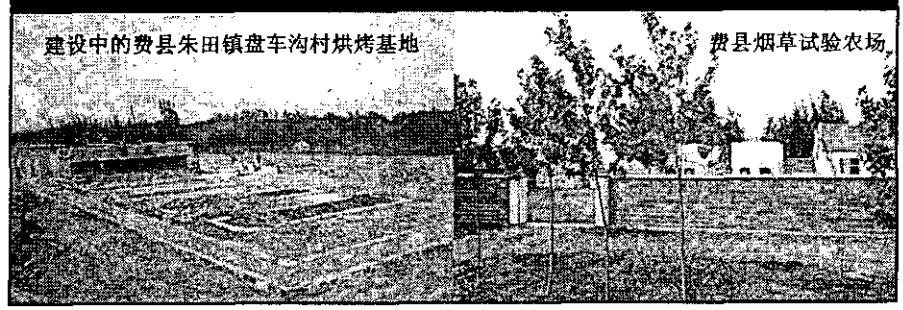
2006年下半年，根据国家局要求和沂蒙山优质烟叶科技示范基地建设的实际，本着“[illegible]”的原则，经过多次调整完善，最终确定在费县、沂水共建设2处育苗示范中心。



对两处示范中心的地形地貌、气候条件、水电设施、社会环境、技术基础、烟叶发展前景等进行了全面调研论证，在此基础上对温室布局与建设规格进行了精心设计，制定了《临沂市甲基溴淘汰集约化育苗示范中心建设方案》。

项目规划以科技示范基地建设为依托，与烟草试验农场、科技示范园区、烟叶烘烤基地等建设规划相衔接，突出经济实用，突出示范引导，突出实际效果。





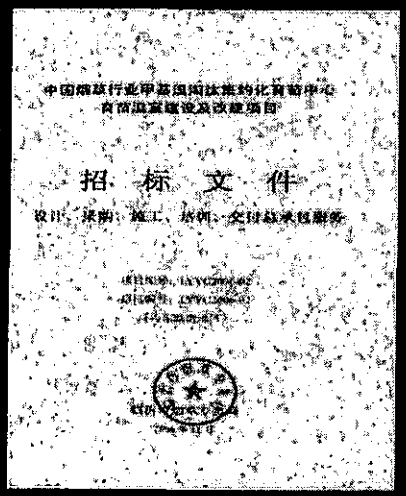
《方案》于**2006**年**8**月下旬经省公司科技处审批上报国家烟草专卖局科教司，**9**月份经国家环保总局外经办合同委员会审议通过；

11月份联合国工业发展组织对项目《技术规格书》进行了审核修改后，项目最终进入实施阶段。

为确保工程建设质量，打造精品工程，我们严格按照UNIDO、国家环保总局、国家烟草专卖局的项目建设要求，规范搞好项目招标工作。

一是认真编制招标文件。

按照UNIDO对温室建设的技术指导意见，借鉴2006年南方三地育苗示范中心招标文件的先进经验，组织专人认真调研、精心编制招标文件，多次进行修改完善，确保了招标文件的科学性、规范性、实用性、可操作性。



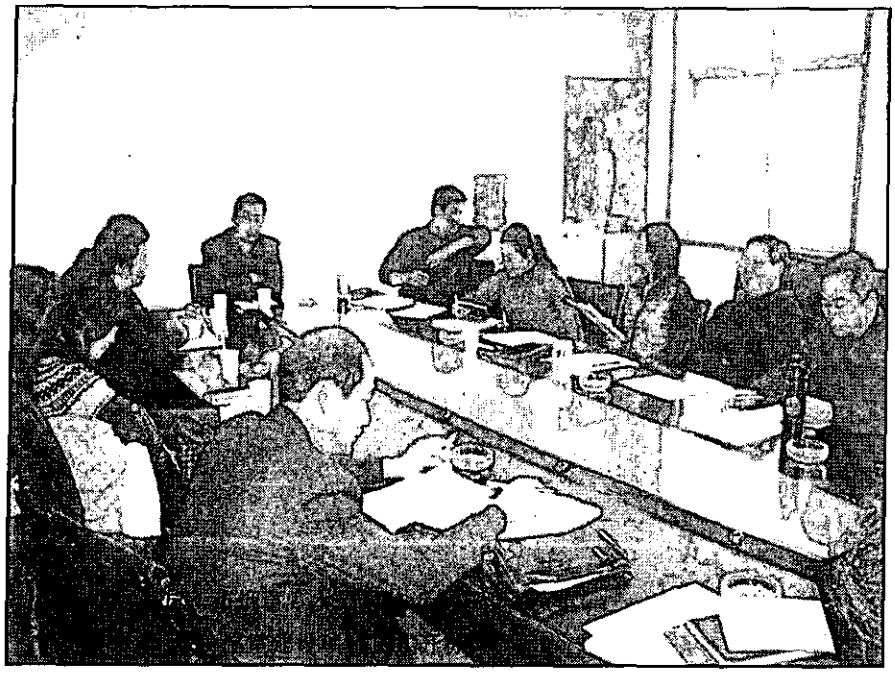
二是严格招标程序。

按照国际、国内招投标有关规定，根据联合国工业发展组织（**UNIDO**）提供的基础短名单，规范进行邀请招标。**11**月**24**日，市烟草专卖局向基础短名单温室公司，以及**1**家邀请单位—济南三峰益农温室工程有限公司发出了招标邀请函。

响应投标的温室公司有**4**家：

- 北京京鹏环球温室工程有限公司；
- 西班牙茵科公司北京代表处；
- 云南格林温室园艺有限公司；
- 济南三峰益农温室工程有限公司。

11月**28**日我们对响应单位正式发布了招标文件。



三是健全招标组织。

临沂市烟草专卖局成立了由**10**名委员组成的项目评标委员会，主任委员为山东农业大学园艺学院院长、博士生导师王秀峰教授；副主任委员为山东农业大学植保学院王玉军副教授、临沂市烟草专卖局财务科杜桂英科长；委员由临沂市烟草专卖局生产技术部、审计科、纪检监察科、沂水县烟草专卖局、费县烟草专卖局的有关科级或副科级干部**7**人组成。

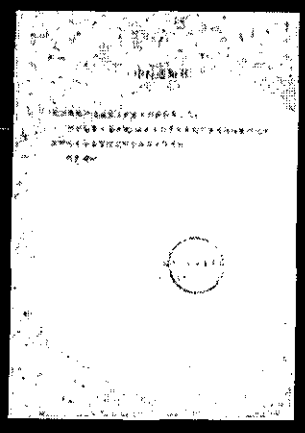
四是认真做好评标工作。

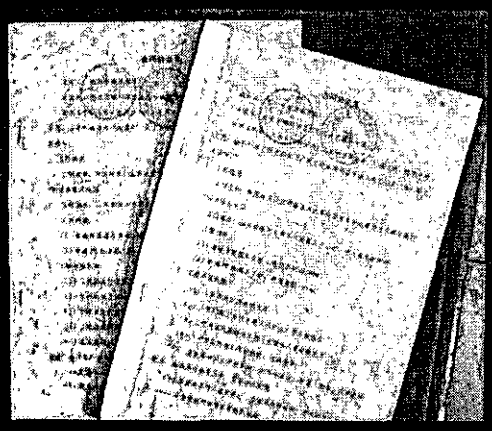
按照**UNIDO**规定和招标文件要求，评标方式采用经评审的最低投标价法：即能满足招标文件的实质性要求，选择经评审的最低投标价格（投标价格低于成本的除外）的投标人为中标人。

严格执行投标一开标一唱标一评标的招投标程序，本着"规范、公平、公正"的原则，评标委员会全体委员对各投标人的投标情况进行了客观、严肃、认真的评议。

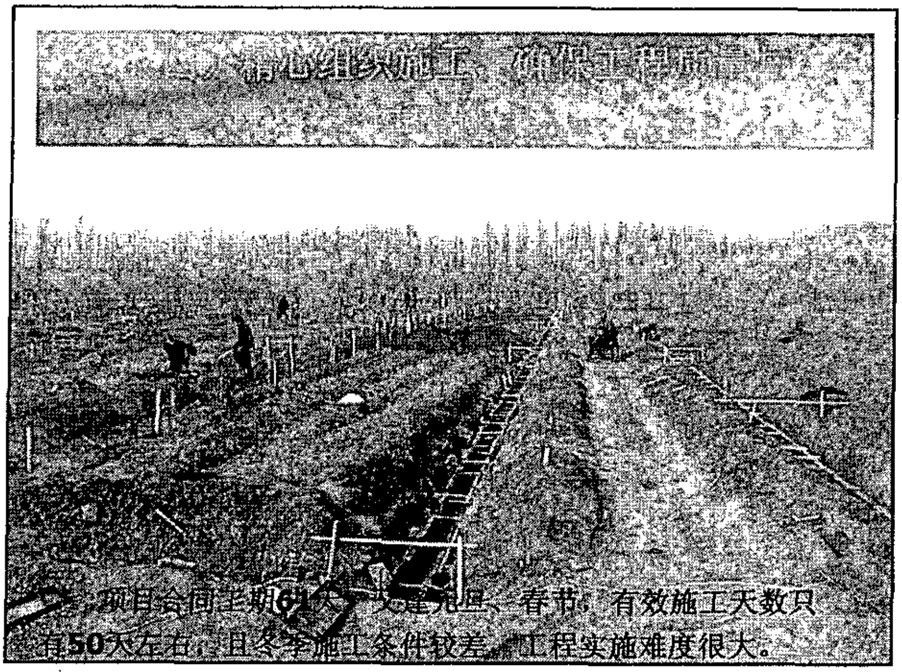
各投标人的投标报价为：北京京鹏公司**258.5**万元，云南格林公司**342**万元，济南三峰益农公司**358**万元，西班牙茵科公司**61.84**万美元（约人民币**545**万元），其中西班牙茵科公司因投标书未采取密封措施被废标。

经过评委会全体委员认真评标，北京京鹏环球温室工程有限公司以合同总价**258.5**万元的价格中标。





同日，我局向京鹏公司发了《中标通知书》，**12**月**27**日签订了温室建设合同协议书，规定**2007**年**2**月**25**日前温室建设全面竣工。

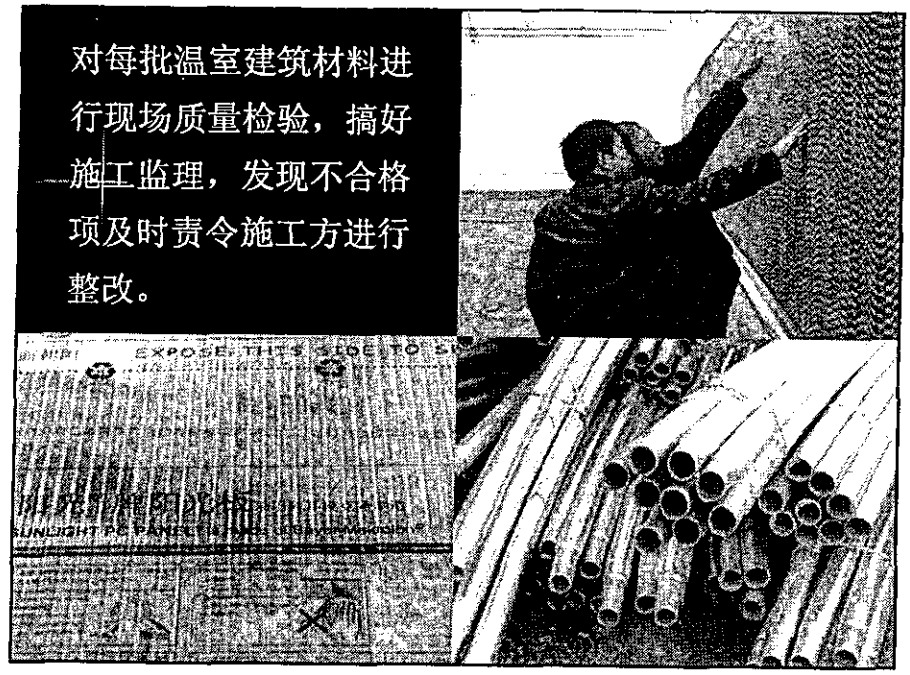

三、精心组织施工、确保工程质量
项目合同工期61天，又逢元旦、春节，有效施工天数只有50天左右，且冬季施工条件较差，工程实施难度很大。

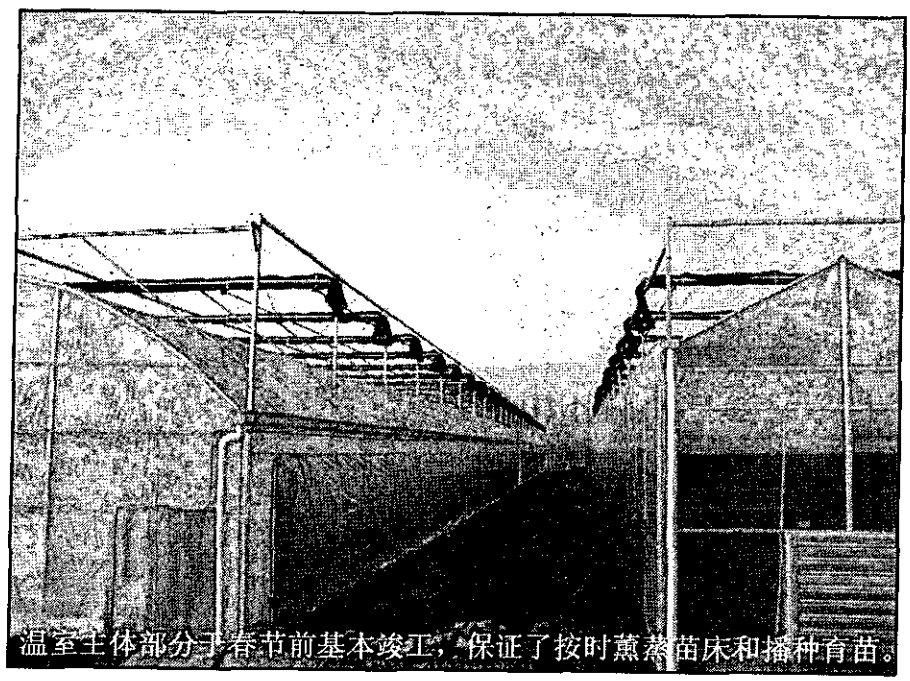

临沂市局（公司）高度重视，加大组织协调力度，由烟叶生产技术部全面负责组织，两县公司项目负责人具体靠上，烟站及相关村积极配合，全面抓好项目建设。

切实加快土建工程建设进度，两处育苗示范中心土建工程于1月20日前后相继竣工，为温室主体安装争取了尽可能充裕的时间。

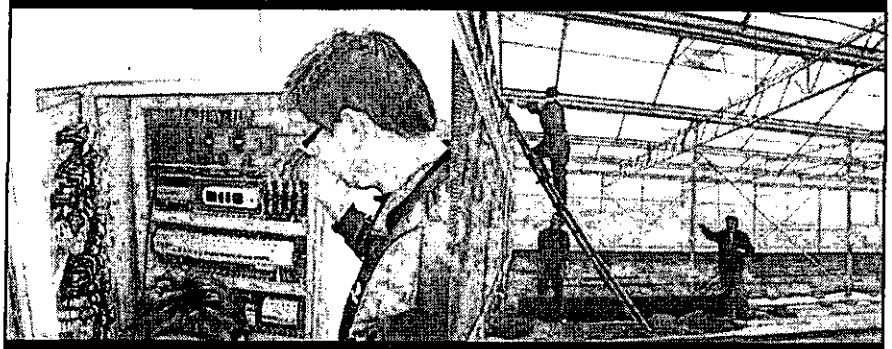
强化施工质量监督。施工过程中，两县公司安排有丰富实践经验的专业人员，严格按技术规格书的要求，把好各环节的建设质量管理，落实质量负责制和责任追究制，

对每批温室建筑材料进行现场质量检验，搞好施工监理，发现不合格项及时责令施工方进行整改。





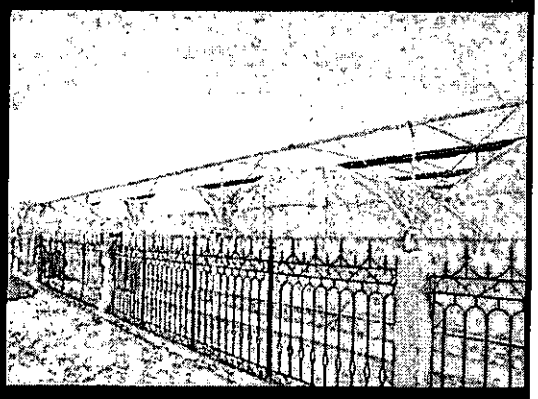
温室主体部分于春节前基本竣工，保证了按时熏蒸苗床和播种育苗。

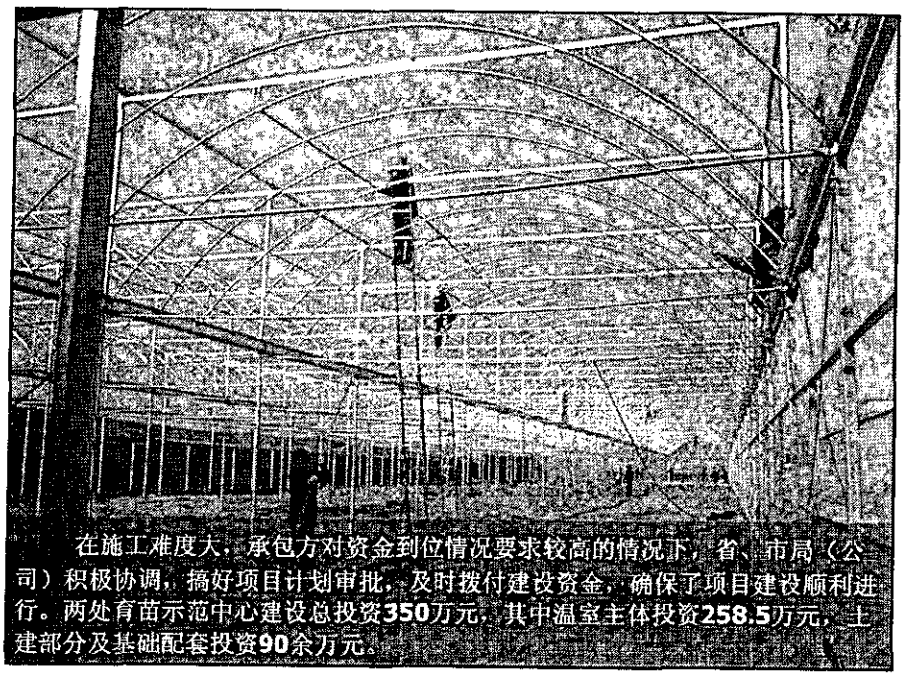


2月下旬至3月份，协调施工方对各温室的设备性能进行了全面系统的调试，确保了工程质量全面达标与温室的正常使用。

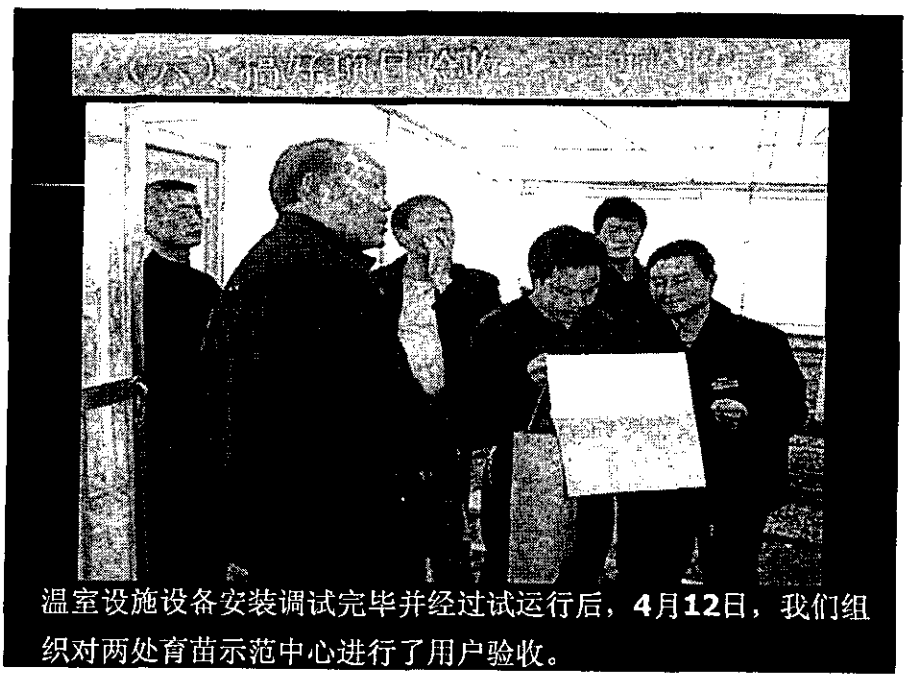
加入资金配套支持，为项目建设

省烟草局（公司）加大项目建设资金的支持力度，确定按国家环保总局补贴1：0.7的比例配套项目建设资金。临沂市局（公司）全力支持育苗示范中心建设，在基础土建、功能完善、运行维护等方面保障资金投入。





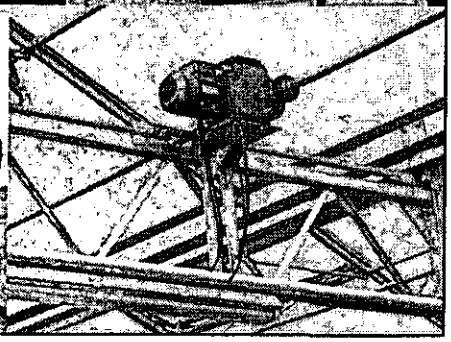
在施工难度大，承包方对资金到位情况要求较高的情况下，省、市局（公司）积极协调，搞好项目计划审批，及时拨付建设资金，确保了项目建设顺利进行。两处育苗示范中心建设总投资**350**万元，其中温室主体投资**258.5**万元，土建部分及基础配套投资**90**余万元。

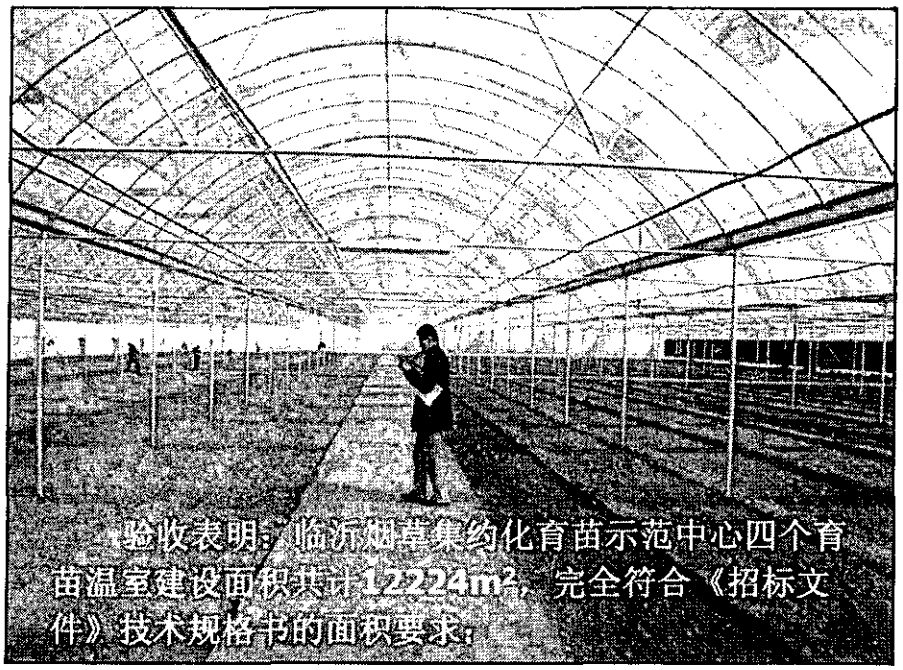


温室设施设备安装调试完毕并经过试运行后，**4**月**12**日，我们组织对两处育苗示范中心进行了用户验收。

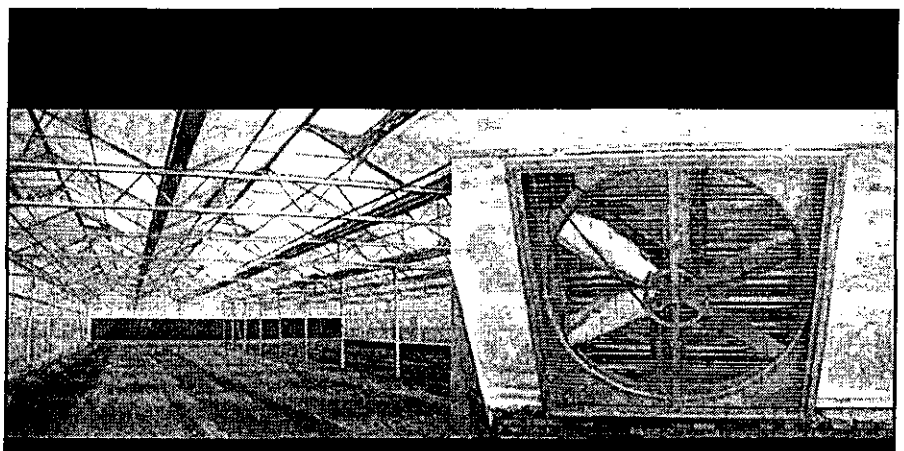
成立了项目验收小组，组长为临沂市建筑设计研究院总工程师李世成，成员包括临沂市农业机械研究所高级工程师、副所长曲宝建，市局（公司）高级农艺师、烟叶生产技术部经理刘广玉，以及负责项目建设的有关人员；京鹏公司项目施工负责人参与了验收。

验收组对温室的建设面积、建筑规格、建材质量、各类设施设备运行效果等进行了全面验收。





验收表明：临沂烟草集约化育苗示范中心四个育苗温室建设面积共计12224m²，完全符合《招标文件》技术规格书的面积要求。



温室所用材料符合《招标文件》规定；温室建筑规格、设施配套符合规定要求，安装质量较好；各项温室设备运行比较稳定，未见明显异常，能够满足育苗示范中心正常工作需要；工程质量初步验收为合格。

同时验收也发现存在有的温室个别部位密封性不够严、个别喷头喷淋雾化效果不理想、有的温室门锁不好用等细节问题，验收组现场提出了整改意见，目前已全面整改到位。

（七）完善运作模式，降低运行成本

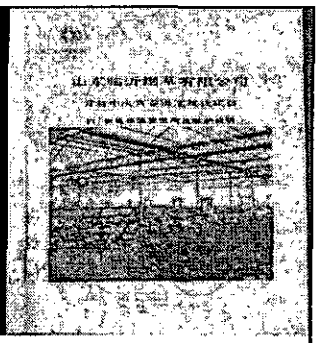
费县育苗示范中心租赁朱田镇北小山村土地，沂水育苗示范中心位于烟站院内，两处示范中心的温室产权均属烟草公司。

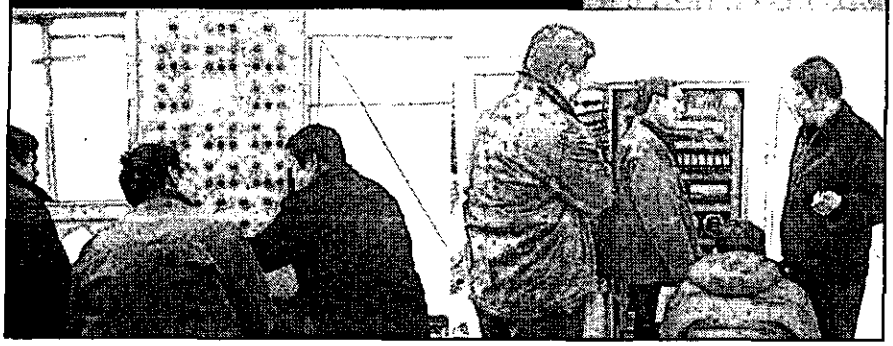
为降低温室运行成本，提高运行效果，今年烟草育苗期间，示范中心采取县公司宏观管理、分户承包经营的运作模式，

两个县公司均安排专人负责育苗示范中心管理，搞好育苗组织、技术指导、物资优惠供应、协调烟苗调拨等。

沂水温室由6个育苗专业户、费县温室由4个育苗专业户具体负责育苗经营管理，按技术要求育苗。

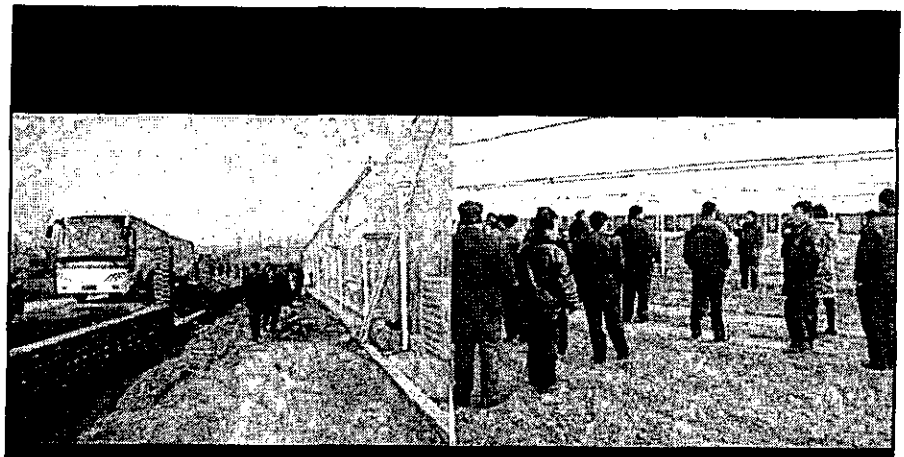
育苗前，我们对两县公司相关责任人员及育苗专业户，就温室使用与维护知识进行了系统培训，保证了温室正确管理使用。



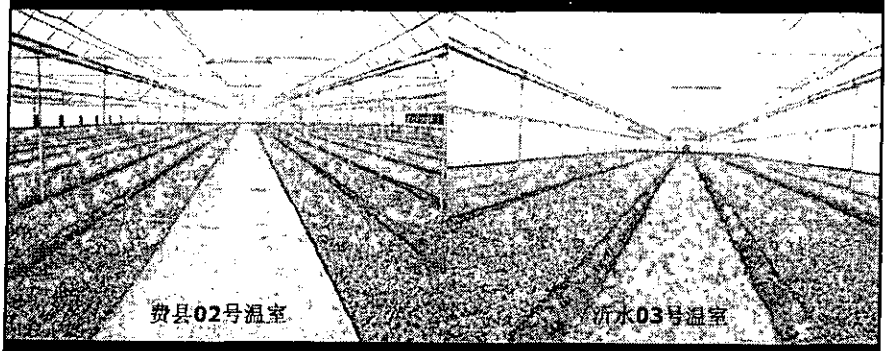


两处示范中心温室于2月14-16日(春节前)喷药熏蒸，统一使用"斯美地"作为熏蒸剂，

春节后边育苗、边调试，3月11日前后播种育苗，总育苗承担面积3500亩。



我们还积极组织附近烤烟育苗专业户到示范中心参观学习，培训替代熏蒸剂的使用技术与集约化育苗管理，示范中心发挥了良好的辐射带动作用。



两处育苗示范中心的烟苗长势良好，整齐健壮，5月上中旬按时成苗移栽。

三、下步的工作打算

今后，我们将进一步研究、探索、完善温室的组织管理模式，初步设想是，本着统一管理、高效利用、以棚养棚的原则，烤烟育苗结束后，育苗示范中心仍由县烟草公司负责统一组织管理，根据两地实际，种植对烟草无侵染性病害的特色蔬菜、特色花卉或其它经济作物，

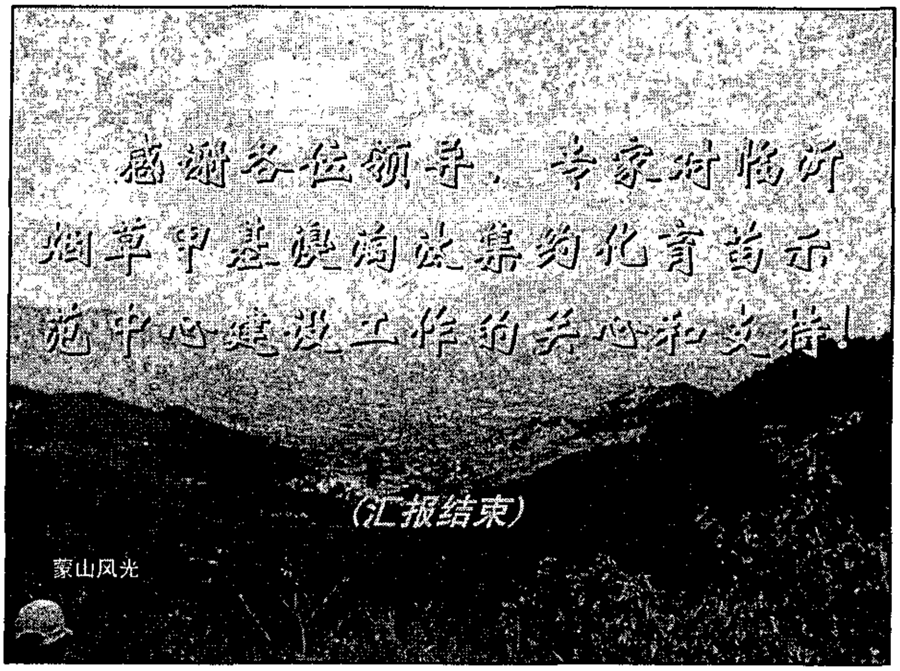
使温室的设施设备不闲置，保证温室的正常使用寿命，同时解决温室运行维护费用。

建立健全项目管理的长效机制，进一步完善管理制度，安排专人长期负责温室管理维护，明确落实责任，定期对温室设施进行检测维修，确保育苗示范中心长久稳定运行，发挥长期效益。

今后，我们将以这两处育苗示范中心为依托，进一步加强　替代熏蒸剂的使用技术培训，使各育苗户更加熟练的掌握替代熏蒸剂的使用技术，巩固全市烟草甲基溴淘汰成果。

将育苗示范中心与烟草科技创新工作相结合，在示范中心内搞好相关烤烟试验示范项目的研究，加强集约化、规范化育苗的示范引导。

同时，合理利用资源，搞好特色农业开发，将育苗示范中心建设成为烟草集约化育苗和现代特色农业的示范样板，发挥育苗示范中心更加重要的作用。


感谢各位领导、专家对临沂烟草中基地沟边集约化育苗示范中心建设工作的关心和支持！
(汇报结束)
蒙山风光

Annex VI

中国烟草行业（南阳）甲基溴淘汰育苗温室建设转增项目验收汇报

南阳市烟草公司

2008年3月

南阳概况

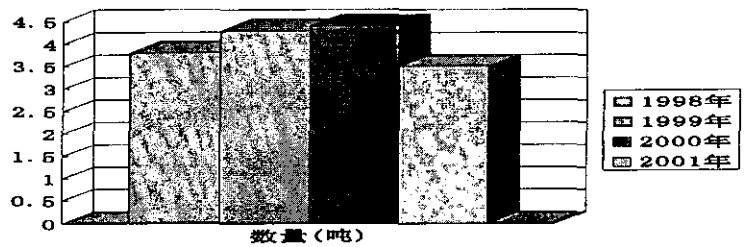
■南阳市地处河南省西南部，辖13个县市区，人口1100多万，总面2.66万平方公里，耕地面积1259.6万亩，其中8个植烟县市，常年种植烤烟20万亩，产量50万担，产值3亿元左右。烟叶是南阳市政府确定的十大支柱产业之一，同时也是全国八个优质烟生产科技示范基地之一。

汇报提纲

- 一、立项背景
- 二、项目基本情况
- 三、项目实施情况
- 四、项目用户验收情况
- 五、项目应用效果
- 六、主要措施
- 七、领导关怀
- 八、存在的不足与下步工作

一、立项背景

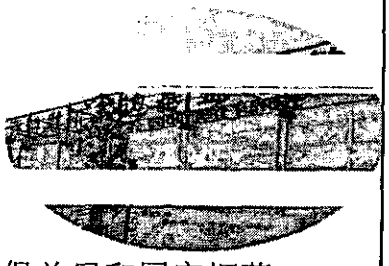
■上世纪八十年代中期至九十年代末，为解决苗床病虫草害问题、大面积普及推广苗床土壤熏蒸消毒技术，所用熏蒸剂主要是甲基溴。平均每年使用甲基溴熏蒸苗床面积10万亩左右，甲基溴使用量4吨左右，仅1998-2004年，甲基溴使用量合计达22吨。



南阳市甲基溴使用情况示意图

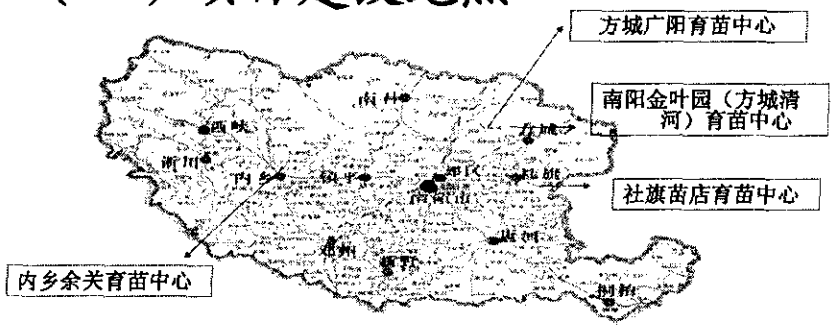
■在当时情况下，采用甲基溴熏蒸苗床土壤技术，对预防烟草病虫草害发挥了重要作用，但是也付出了污染环境的惨重代价，因操作不慎造成的人畜中毒事件时有发生。2002年以来，随着烟叶育苗技术的不断进步，大棚托盘育苗和漂浮育方式逐步推广应用，划块育苗和营养钵育苗面积逐渐减少，积极示范推广斯美地作为苗床土消毒剂，逐步淘汰甲基溴。

二、项目基本情况



在世界工业发展组织、国家环保总局和国家烟草专卖局的支持帮助下，南阳烟草分公司于2006年利用蒙特利尔赠款资金，承担了全国烟草行业甲基溴淘汰二期（一批）工程项目，开展甲基溴淘汰集约化育苗示范中心建设，以点带面推广集约化育苗技术，不断提升烟叶生产科技水平，加快推进甲基溴淘汰工作，项目基本情况如下：

（一）项目建设地点



根据项目实施方案的要求，选择了交通便利，通讯、水利、道路等基础设施配套、自然条件优越、烟叶生产水平较高、种植规模较大、地方政府重视项目建设地点。同时为满足集约化育苗技术研究、技术示范、人才培养的需要，选择了南阳金叶园等烟叶主产区作为建设地点。

（二）项目建设进度

序号	时间进展	工作内容
1	2006年8月24日	建设方案申报
2	2006年10月9日	建设方案批准实施
3	2006年10月16日	技术规格书通过ON100审核
4	2006年11月20日	国家烟草局批准并立项目标
5	2006年11月25日	发放招标文件并开始招标
6	2006年12月20日	开标
7	2006年12月21日	发中标通知书，签订合同并组织施工
8	2007年3月10日	项目土建竣工
9	2007年7月10日	市局（分公司）组织用户验收

（三）项目建设规模

建设地点	温室类型	连体数量	建设数量	单跨规格		面积（m^2）
				跨度（m）	长度（m）	
南阳金叶园	A	2	1	9.6	32	614.4
方城广阳镇	B单层膜	8	2	8	40	5120
内乡余关乡	B双层膜	8	2	8	40	5120
社旗苗店乡	B单层膜	8	1	8	40	2560
小计			6			13414.4

协议约定建设面积为13400m²

（四）项目建设目标

在替代甲基溴育苗中心建设项目示范带动下，逐步扩大漂浮育苗新技术推广面积，2007年漂浮育苗面积达到95%， 2008年100%实现集约化育苗、商品化供苗。从2007年开始，淘汰甲基溴达到100%，使南阳烟叶育苗技术走上科技、环保的健康发展轨道，实现经济效益、生态效益和社会效益的和谐统一。

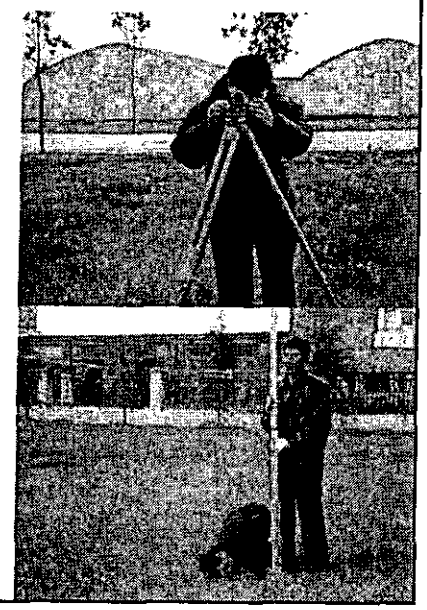
三、项目实施情况

（一）科学规划，严密组织

•组织专业技术人员对工程选址和设计进行论证

•征求和采纳国家烟草生理生化研究基地和世界工业发展组织提出的修改意见

•制定《南阳甲基溴淘汰集约化育苗中心建设方案》



（二）规范程序，招标采购

1、招标过程。

■2006年11月23日，向京鹏环球温室工程有限公司、云南格林温室园艺有限公司等13个单位发出了招标邀请函

■2006年12月20日开标，时间间隔28天，符合招投标相关法律、法规和世界工业发展组织、环保总局、国家烟草局的相关规定和要求。

■评委会人员从我单位评委库中随机抽取，由马建芳等7名同志组成项目评委会。

■开标前，组织有关专家对评委人员进行了培训。

■招标过程中，邀请甲基溴淘汰项目技术顾问时向东博士全程参与。

甲基溴项目招标现场

（二）规范程序，招标采购

2、招标结果。

经过全体评委认真、细致、全面的评标

■北京京鹏环球温室工程有限公司以45万元的价格中标PC板温室

■北京京鹏环球温室工程有限公司以171万元的价格中标单层膜温室项目

■江西进贤绿佳温室公司以118万元的价格中标双层膜温室项目

整个招标过程，实现了公正、公开、公平、规范、有效。

（三）配套资金，启动项目

■积极筹措资金300多万元用于项目建设

■按合同约定，及时支付有关单位货款

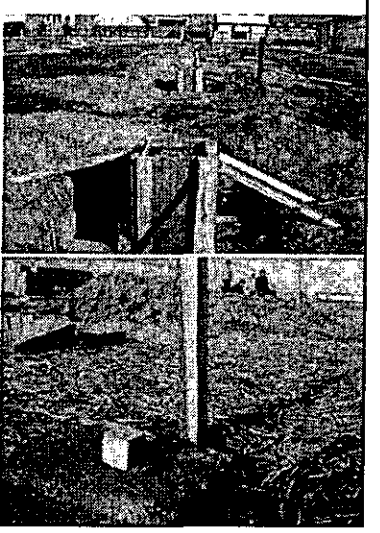
■落实基建配套资金144.4万元（其中：方城54万，内乡48.4万，金叶园14万，社旗28万）；主要用于育苗中心电力配套、道路、办公房、围墙等配套设施建设。

（四）严格监理，保证质量

■各点明确一名公司党组成员负责

■明确一名熟练基建技术人员负责质量监管

■从有关单位聘请专业监理人员负责基建工程、材料质量、安装质量把关，严格监理，确保施工质量达标。

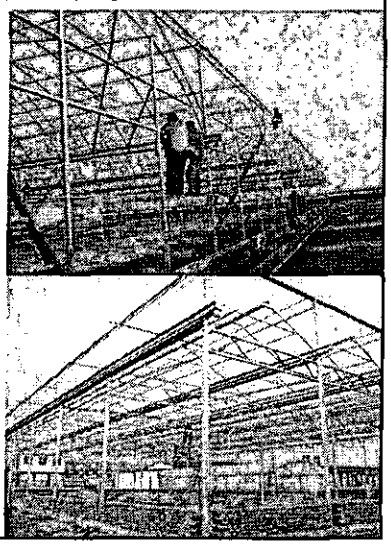


（五）倒排工期，确保进度

■为了确保不误2007年烟叶育苗工作，我们按照育苗日期倒排项目工期，组织施工。

■分公司和县公司都确定专人负责工程进度，及时协调解决项目建设过程中出现的问题，确保项目顺利进行。

■项目于2006年12月21日正式开工，2007年3月1日竣工，保证了当年建成、当年使用、当年见效。



四、项目验收情况

•2007年7月10日

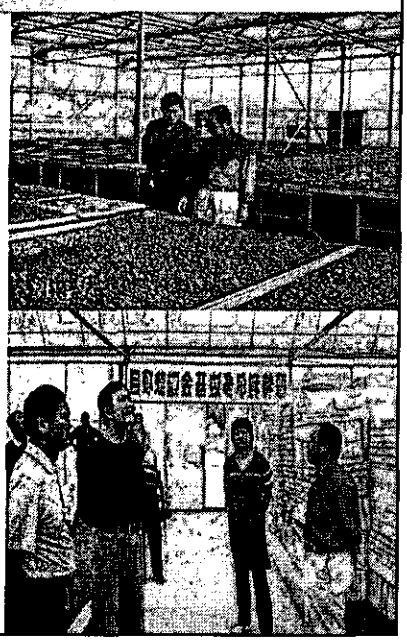
•省公司科技处陈秀华科长

•河南省设施农业园艺首席专家孙治强教授

•国家烟草行业甲基溴淘汰项目顾问时向东博士

•单位相关科室人员

•用户验收



验收组实地考察了四个甲基溴淘汰集约化育苗中心，查看了温室大棚项目的建设、管理情况，现场操作了相关设备，了解了承担育苗科研试验项目的开展情况，听取了项目建设情况汇报，调阅了相关档案资料等。

如期完成了约定的建设面积

工程材料质量符合国家相关标准及技术规格要求

档案资料齐全

招投标程序规范，符合法律、法规和世界工业发展组织等相关要求。

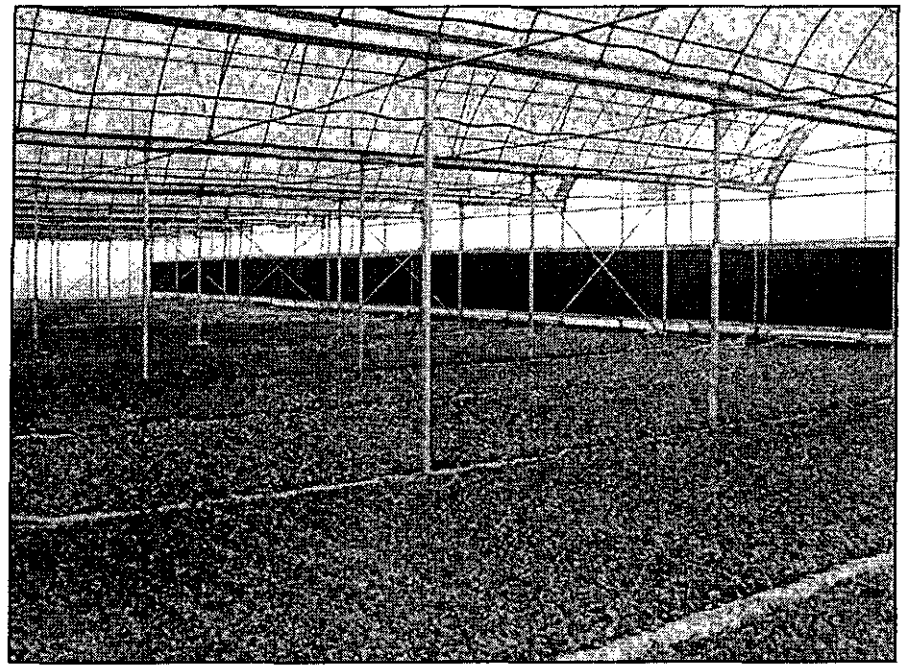
经当年使用验证，其保温、降温及遮阳等功能符合合同要求，完全能够满足培育优质烟苗需要，并在彻底淘汰甲基溴，推动烟草育苗的商品化供应和社会化服务方面，起到了积极的示范带动和辐射作用。

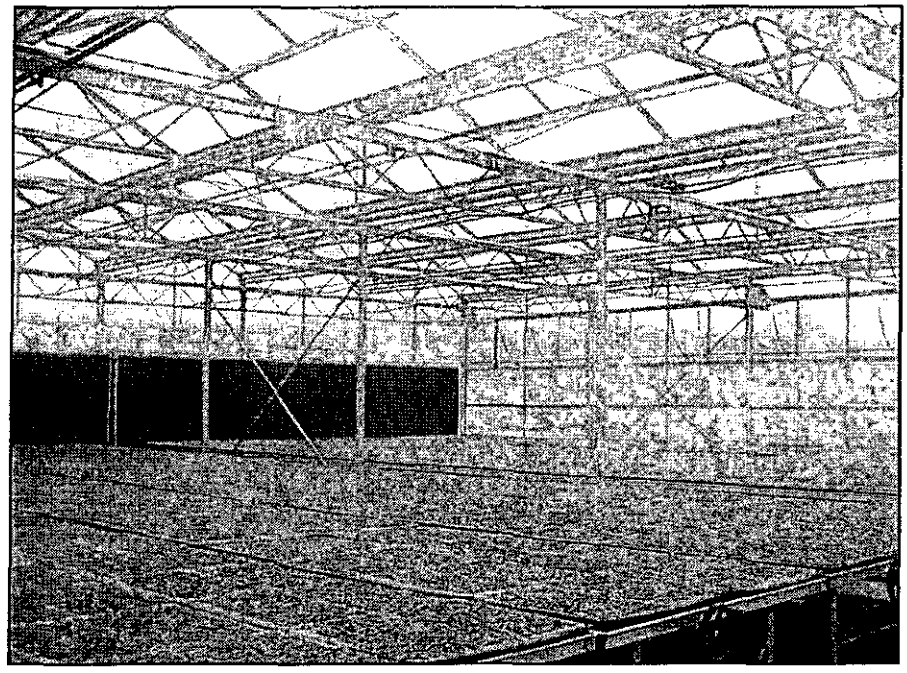
验收组在金叶园

五、项目应用效果

1、育苗数量

2007年，4个育苗示范中心育苗可供移栽面积8950亩，占全市植烟面积15万亩的6%。其中：方城县广阳3400亩左右，内乡县余关3400亩左右，社旗县1700亩左右，金叶园450亩。



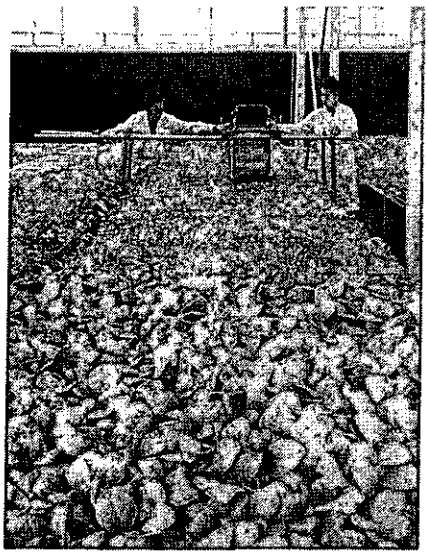


五、项目应用效果

2、育苗质量。

一是大棚内温度、湿度可调控性能增强，为烟苗生长发育提供良好的环境。

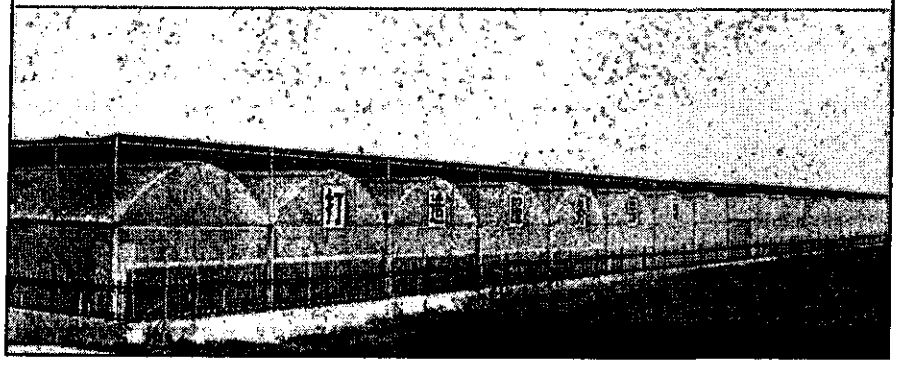
二与常规育苗相比，培育出的烟苗生长健壮、根系发达、长势均衡一致。



五、项目应用效果

3、设备运行情况。

设备运行正常、温湿度调控灵敏度较高、操作简便、主要技术指标达到项目设计要求



五、项目应用效果

4、示范效果。

2007年，全市建成11个育苗示范中心，新建育苗大棚149座，建筑面积47680平方米，新增集约化育苗面积3万余亩，2008年新建大棚354座，目前全市共有各类育苗大棚984座，可供移栽面积18万亩，集约化育苗率达到100%，彻底淘汰了甲基溴在南阳的使用。

五、项目应用效果

5、研发效果

南阳烟草金叶园PC板温室

《新型育苗基质对比试验》

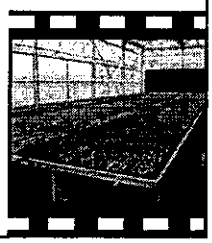
《花生壳发酵替代基质技术研究》

《不同营养液浓度对比试验》

《硫酸铜浓度对螺旋根的影响》

《烟苗根系增氧试验》

在温室的持续利用方面，探索蔬菜种植试验。



六、主要措施

1、加强领导，强化管理

市公司成立了项目建设领导小组，实行目标责任制管理。

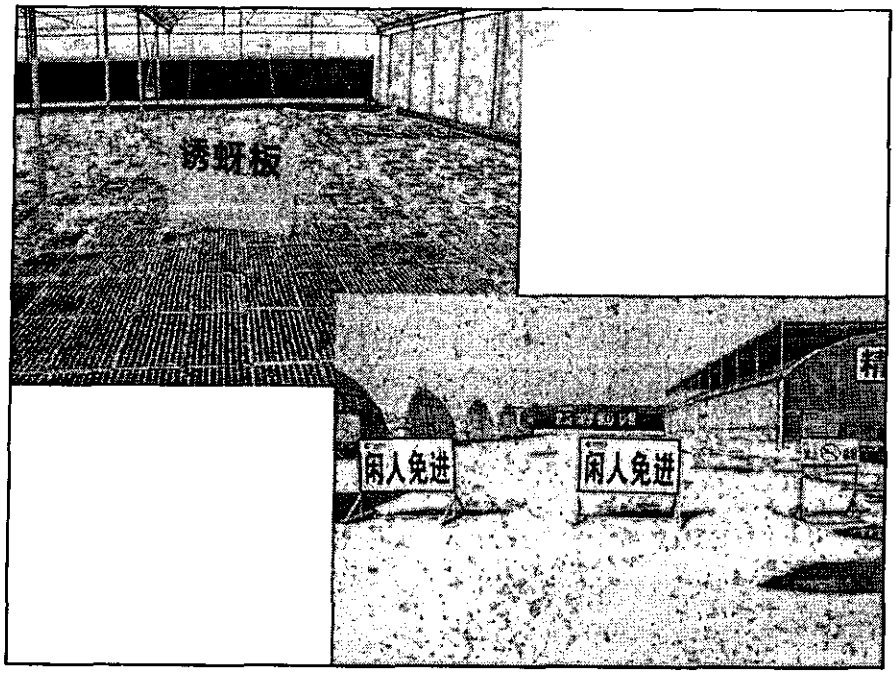
六、主要措施

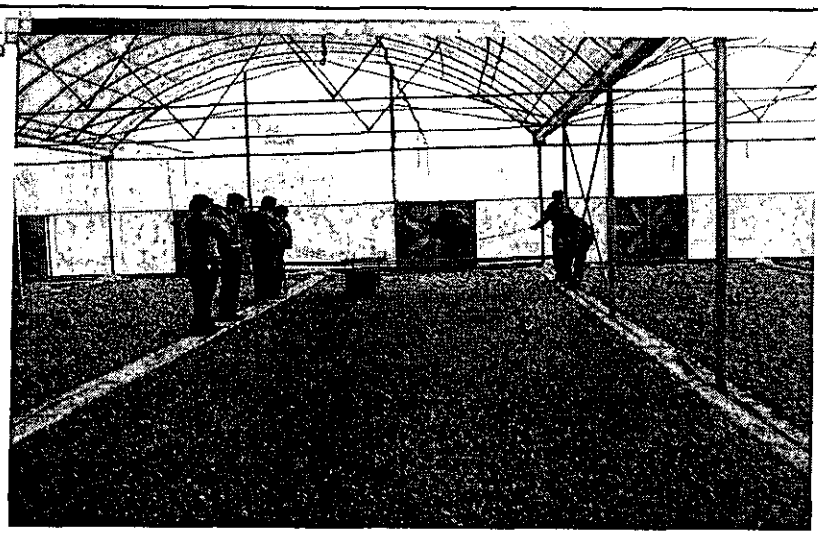
2、制订制度，加强管理

是完善制度，先后制订了大棚管护制[illegible]
[illegible]漂浮育苗操作技术规程、漂浮育苗卫[illegible]
[illegible]消毒规程、漂浮育苗操作技术要[illegible]


PIAOFUYUMIAODAPENGCAOZUOJISHUGUICHENG


消毒池
是设施配套，四个育苗单元都设置了喷药池、
消毒池、焚烧池等设施，制作了禁止吸烟等相
关标志、标识。
清洗池





三是专人管护，聘请专业技术人员进行技术培训，确定专业人员负责设备操作，保证设备正常运行。

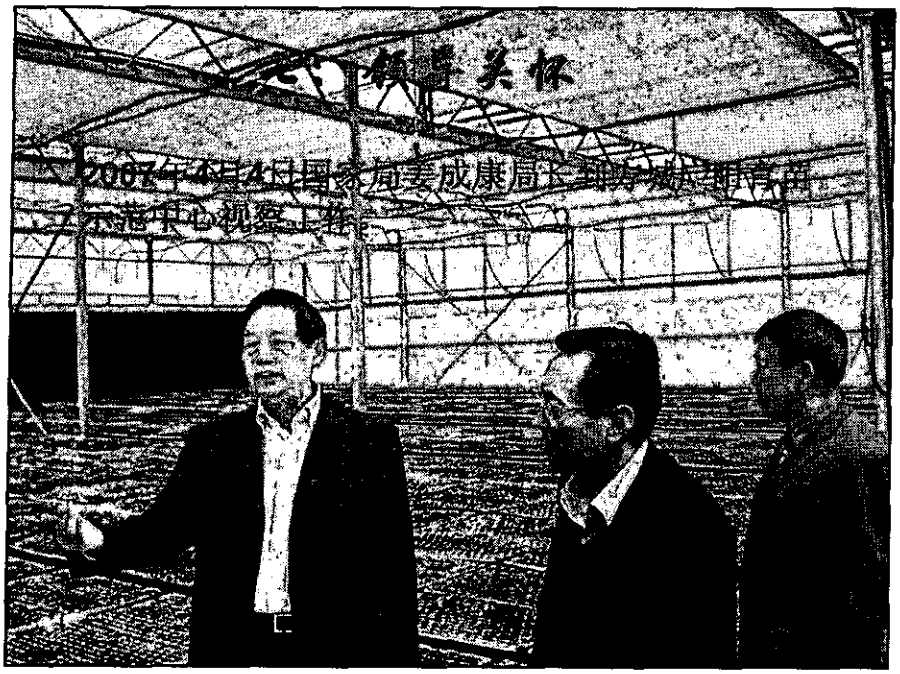
四是规范运行，共实行两种运行机制，金叶园育苗中心由公司技术人员管理，主要用于育苗及后续利用技术研究。方城广阳、内乡余关、社旗苗店育苗中心的产权归公司，租赁承包给专业户经营使用，租赁费作为大棚维护基金，滚动使用。

3、搞好协调，解决难题

集约化育苗中心建设涉及国土资源局、电业局、乡镇政府、村委会等多个单位，在项目建设过程中，我们积极向当地政府汇报，与有关部门协调沟通，取得理解、支持和配合，保证了项目顺利进行。

4、搞好宣传，政策扶持

淘汰甲基溴是利国利民的好事，要把好事办好，就必须加强宣传，争取各级各部门和广大烟农的支持和配合。我们通过电视、报纸、印发传单等多种形式，宣传甲基溴对臭氧层的危害及甲基溴淘汰的必要性，通过宣传发动，提高了广大烟农环保意识。同时，我们加大对新型土壤熏蒸剂斯美地的扶持力度，免费供应烟农，促进了斯美地大面积推广，并彻底淘汰了甲基溴。



2007年4月4日国家局姜成康局长到海城示范点示范中心视察工作。


2007年5月14日国家局何泽华副局长
育苗示范中心视察工作。


育苗中心视察工作

国家烟草栽培生理生化基地主任、著名烟草专家、
教授刘国顺参观指导烟叶中心视察工作

国家局于明芳处长实地考察项目规划工作


烟草育苗中的“补天行动”
中国烟草
2007.04
保护臭氧层 行动在行动

八、存在的问题及下步工作

（一）存在的主要问题。

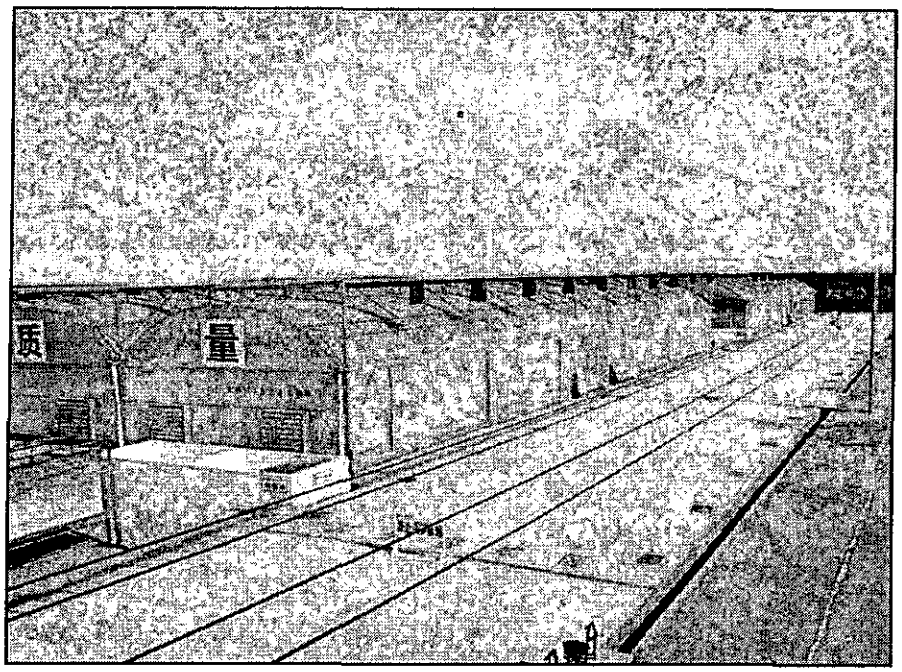
在项目的整个运行过程，涉及的知识层面广，涉及的专业知识性强，国家局、省局要求高，具体建造过程时间紧，我们的参项人员受专业知识、操作经验等限制，项目建设中一定还存在有问题和不足。

如:剪叶机的使用等。

（二）下步的工作

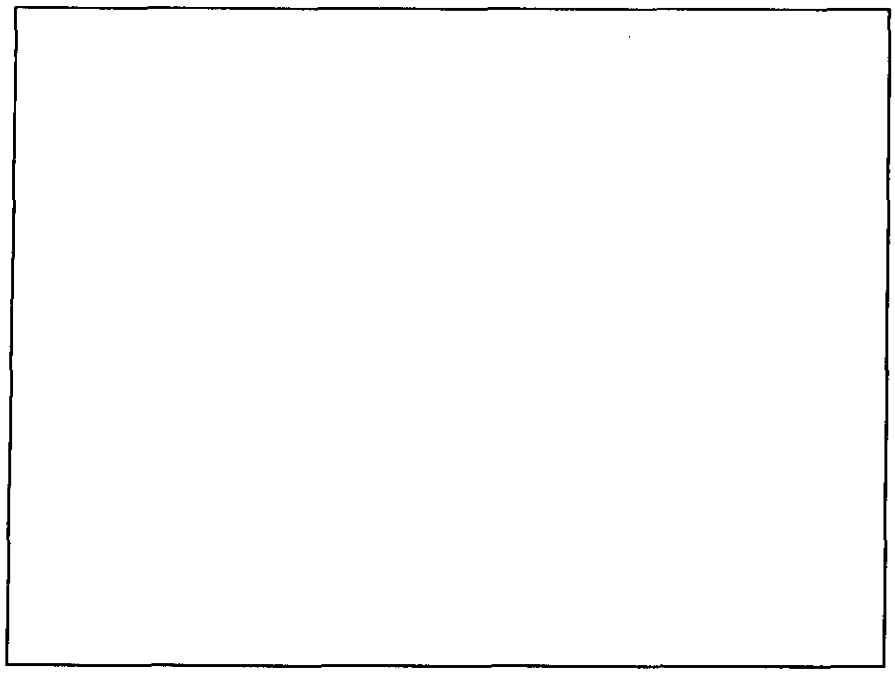
规范和加大育苗温室的综合利用技术的推广工作

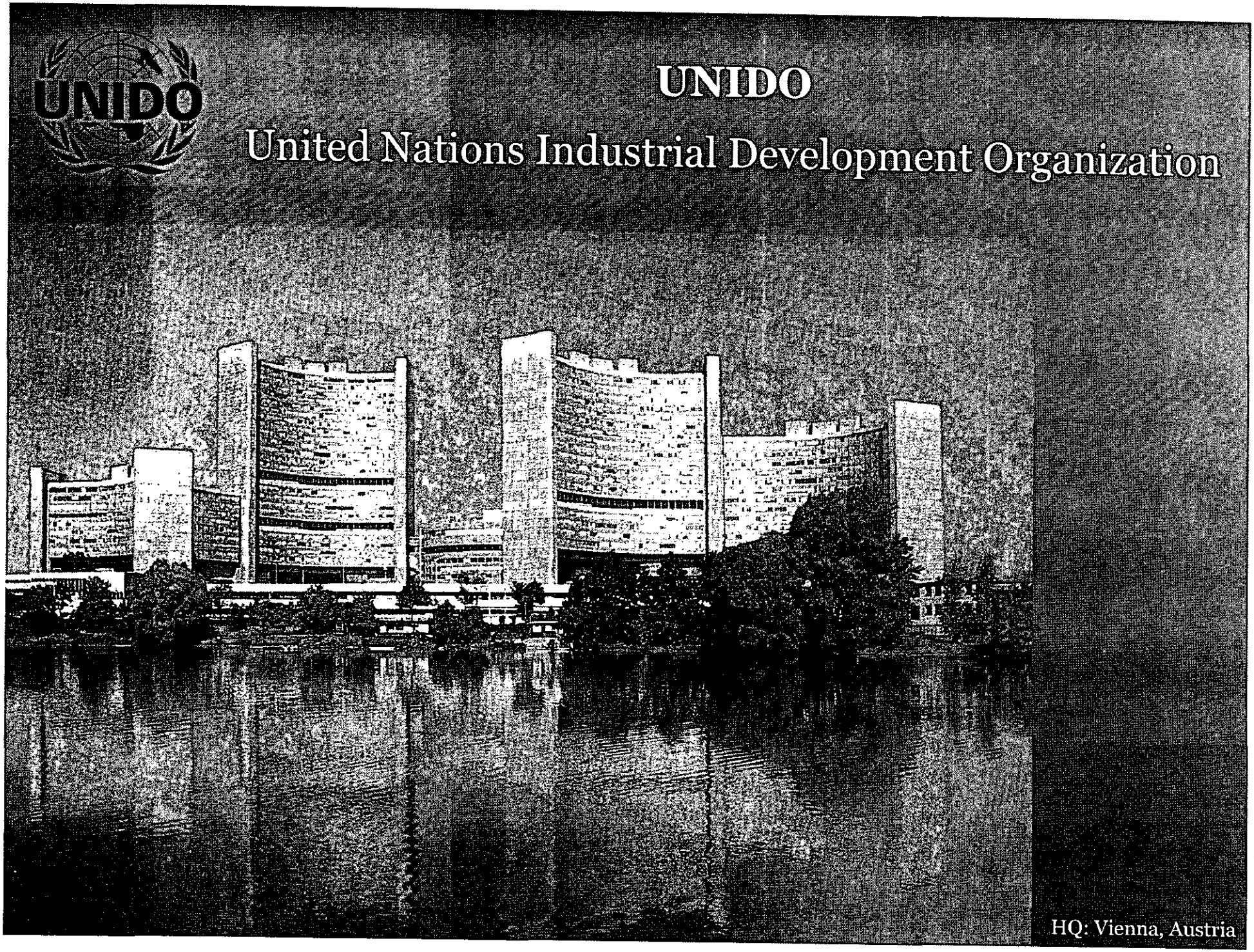
育苗温室除每年的2月至4月底用于育苗期外，在其它季节，可以种植一些瓜类、叶菜类作物--苦瓜、芹菜、空心菜等，尽可能开发本地高经济附加值作物，增加经济收益，以便更好地对育苗温室进行维护，实现以棚养棚的目标，促进项目建设的持续发展。



祝各位关心南阳烟草事业的领导和专家

身体健康！万事如意！




UNIDO
UNIDO
United Nations Industrial Development Organization
HQ: Vienna, Austria

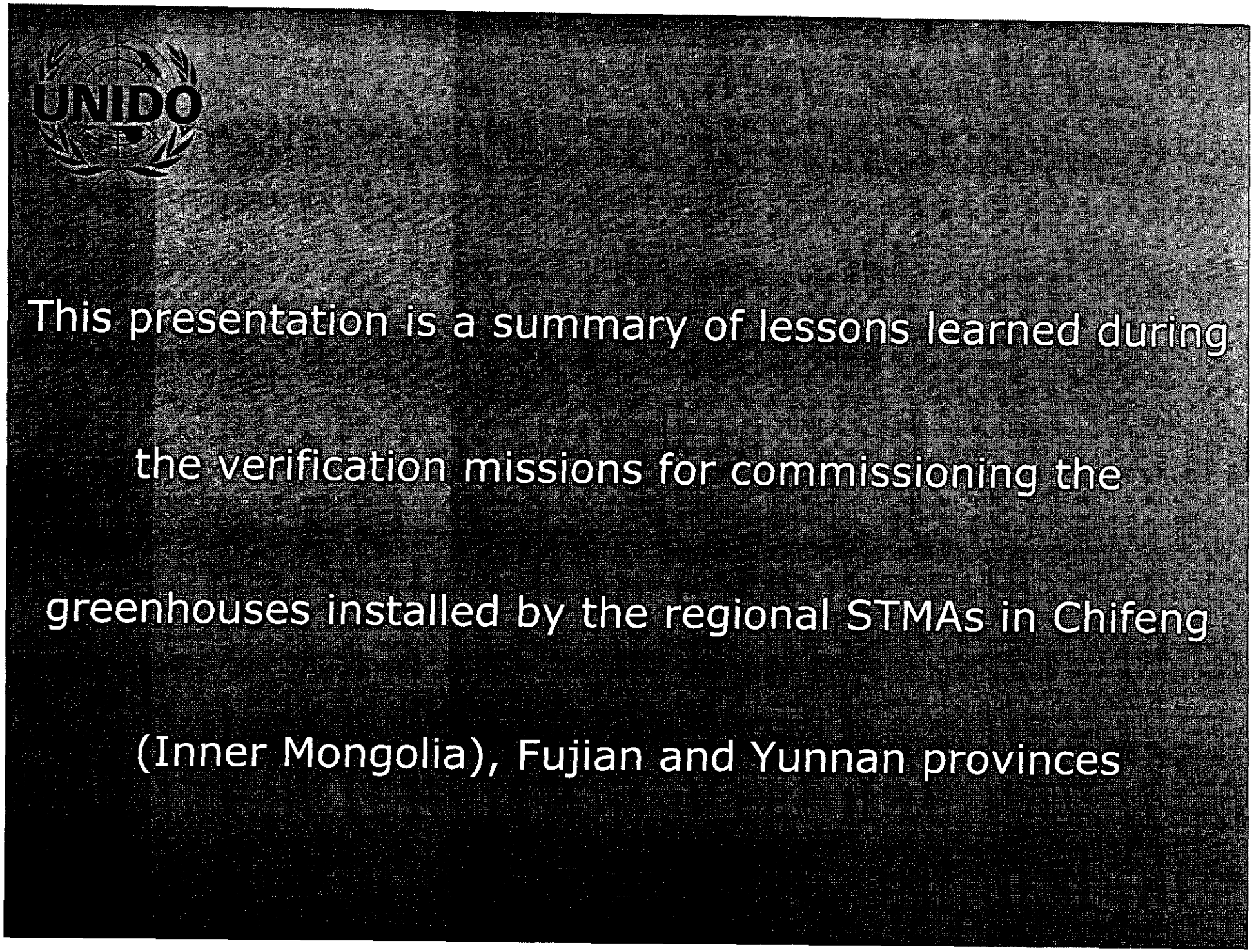
Annex VIII

Greenhouse technology for seedlings production

Mr. Alessandro AMADIO
Industrial Development Officer

UNIDO Regional Office – Beijing, China

Phone: +86 10 6532 3440 ext. 220
Fax: +86 10 6532 6315
e-mail: a.amadio@unido.org


UNIDO
This presentation is a summary of lessons learned during
the verification missions for commissioning the
greenhouses installed by the regional STMAs in Chifeng
(Inner Mongolia), Fujian and Yunnan provinces

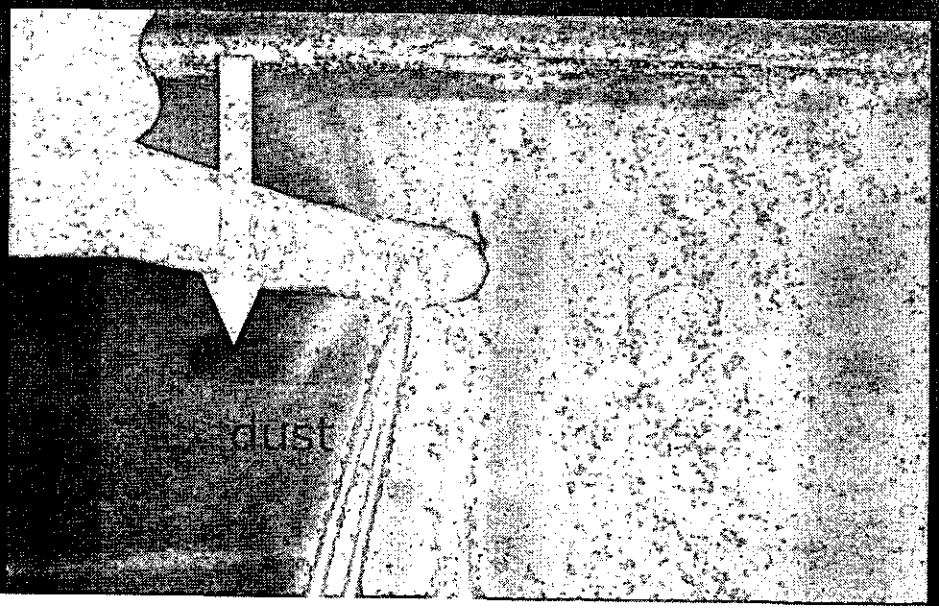
Summary

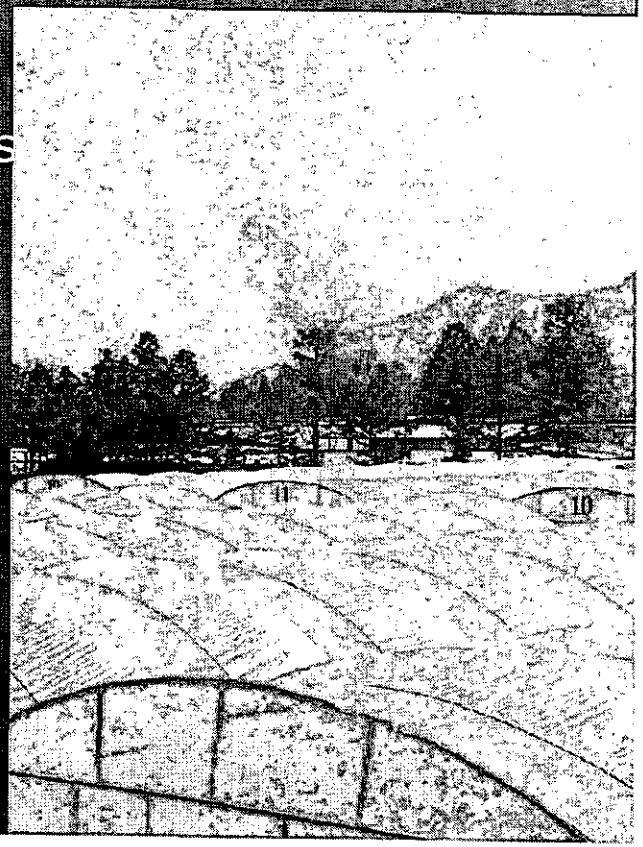
1. Nursery Location
2. Greenhouse Orientation
3. Greenhouse Types
4. Light radiation and transmission
5. Metal structure
6. Thermal Screens
7. Civil works and installation
8. Space management and efficiency
9. Greenhouse volume
10. ... Others: cooling and ventilation systems, overhead irrigation and suspended tray system.

Nursery Location

The selection of the proper location is the precondition for the success of the nursery in terms of seedling quality and cost. It has to look into the following parameters:

1. A favorable micro climatic condition characterized by: constant ventilation, high sun radiation and low relative humidity.
2. Free from potential sources of pathogens (insect, virus and fungi), as flower and horticulture crops plantations.
3. Water availability, in terms of quality, quantity.
4. Clean environment, free from pollutants such as smoke, ash, dust, etc.





Greenhouse Orientation

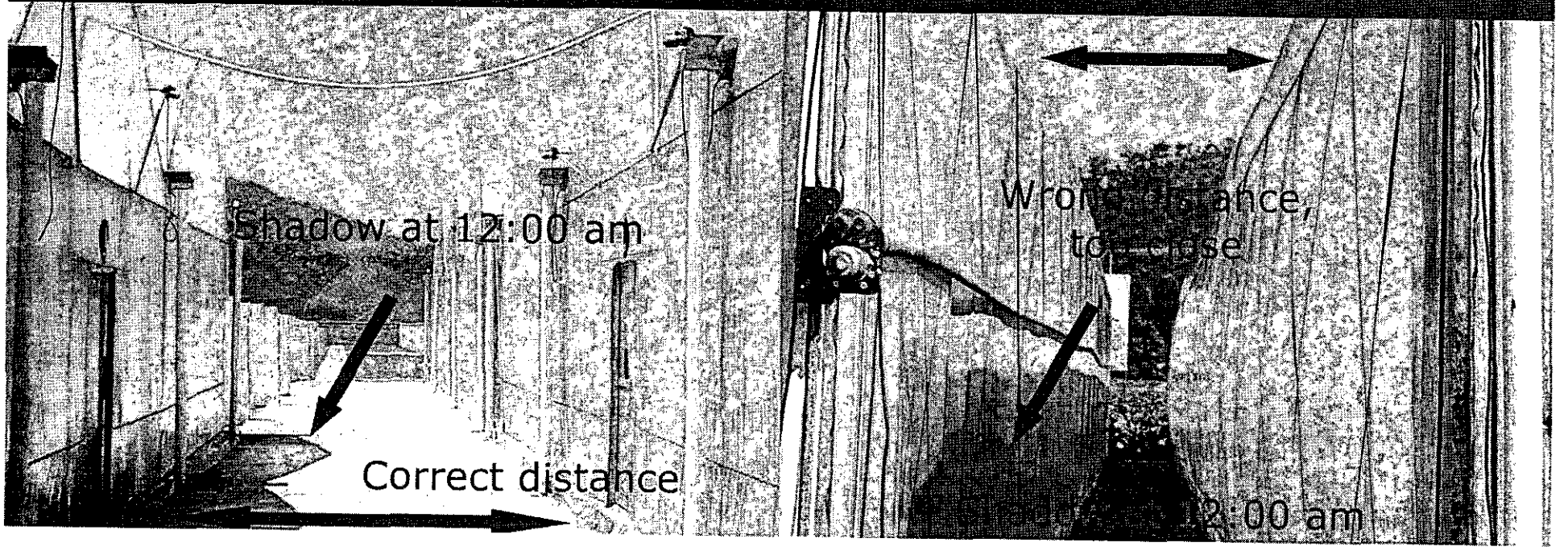
North - South

N

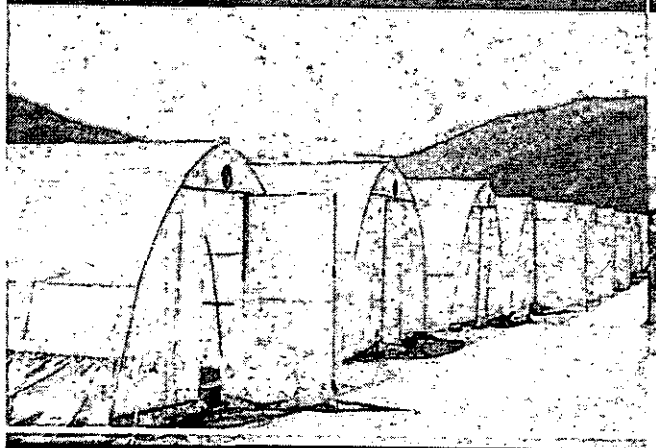
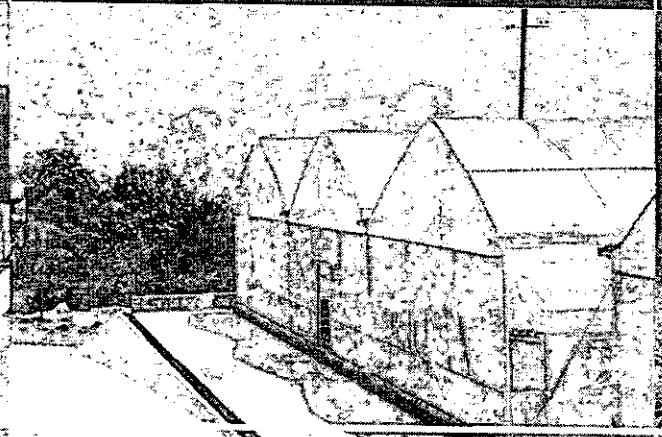
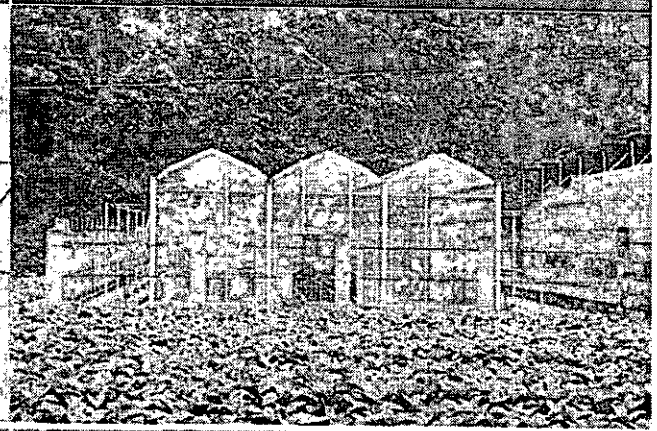
S

Correct North – South oriented

Wrong East – West oriented



Greenhouses Types

Low tunnel	High tunnel	Venlo
		
Cost: 27 RMB/m^2 (1/5)	Cost: 130 RMB/m^2 (1)	Cost: 1,040 RMB/m^2 (x8)
Polyethylene film	Polyethylene film	Polycarbonate panels
Removable structure	Fix structure	Fix structure
Low volume and poor climatic control	High volume and good climatic control	High volume and good climatic control
High light radiation	High light radiation	Low light radiation
Suitable for Short crop season	Suitable for Long crop season	Suitable for Long crop season
Poor ventilation	Good ventilation	Good ventilation
Low resistance wind	High resistance wind	High resistance wind and snow load

Light radiation and Light transmission

Light radiation is given by the local climatic condition.
Light transmission is given by the construction material.

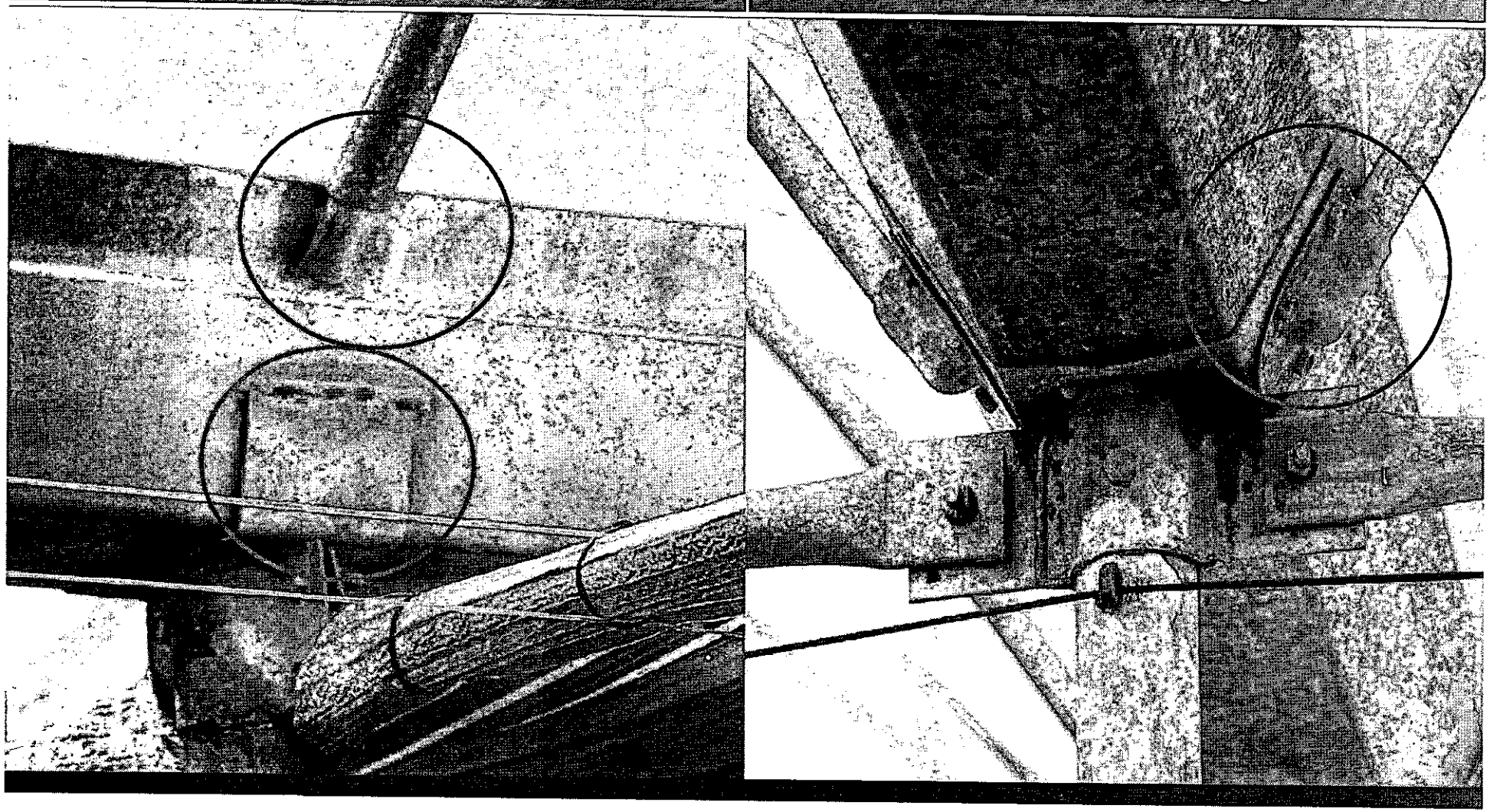
1. Light and Temperature are the two key production parameters, their control ensure the production of strong and healthy seedlings.
2. Low light radiation results on excessive internodes elongation, soft tissues, susceptibility to fungal disease, plants lost after transplanting.

Venlo – polycarbonate panels Low light transmission	High tunnel – polyethylene film High light transmission

Metal structure - Welding / bolds

1. Welding is not allowed for greenhouses installation, only bolds.
2. Temperature stress and wind quickly brake apart welded parts.

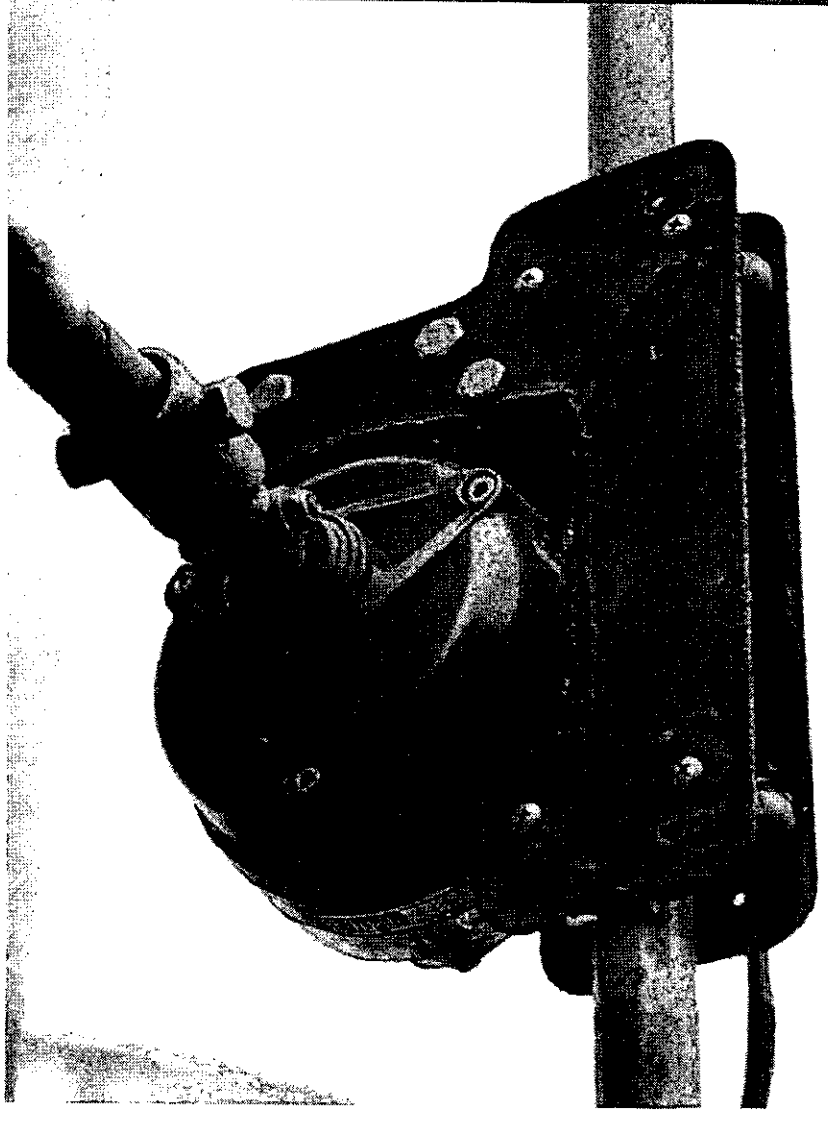
Welded - wrong	Bolded - correct

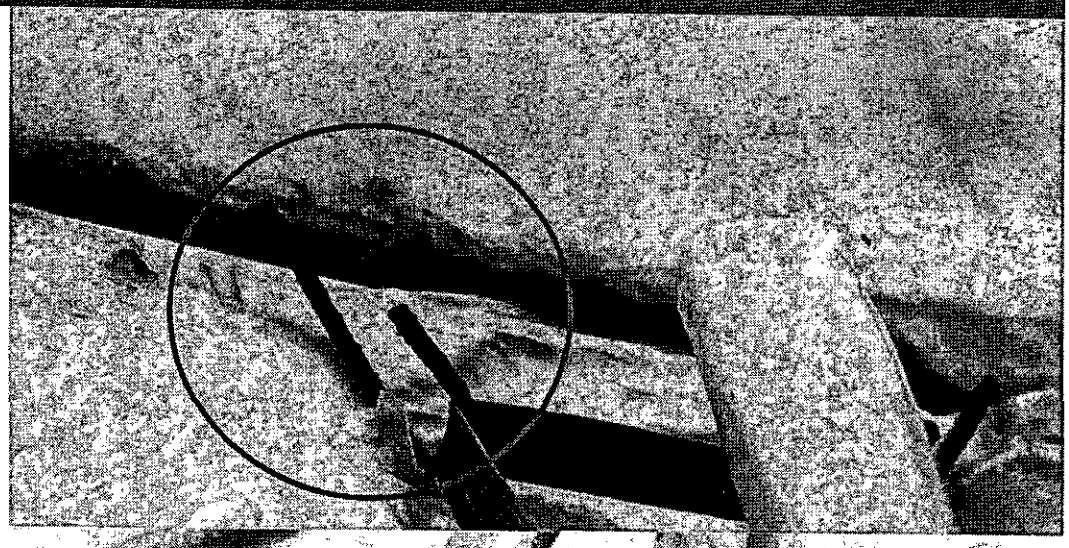


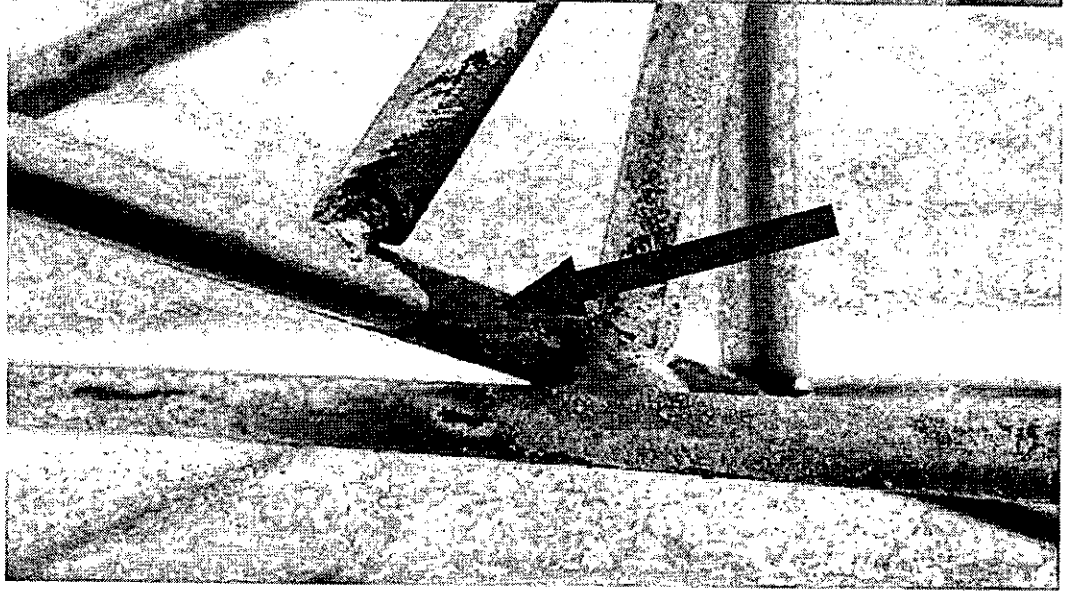
Galvanization

All component must be host still or cold (Zenzimir) galvanized

Metal part not galvanized get quickly rusted

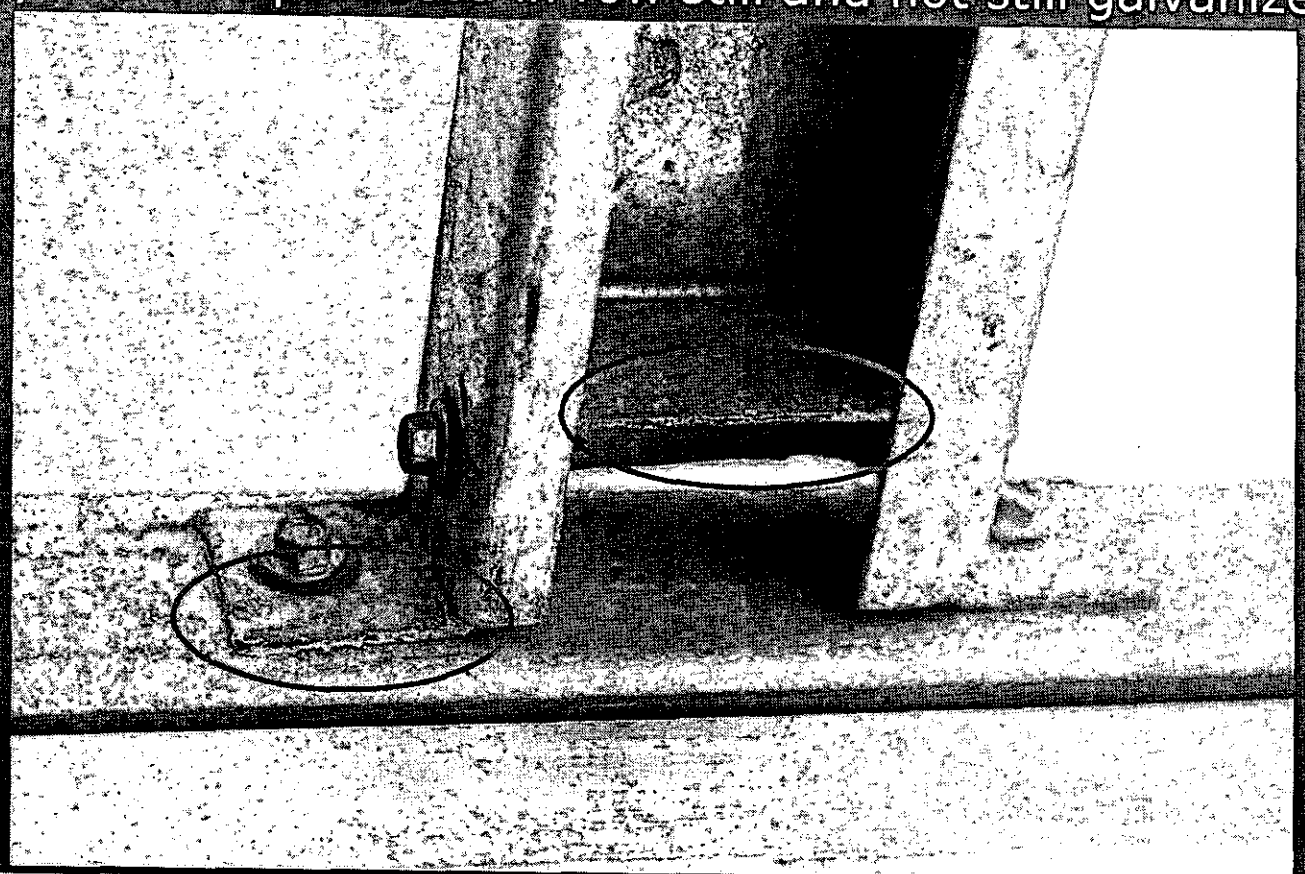






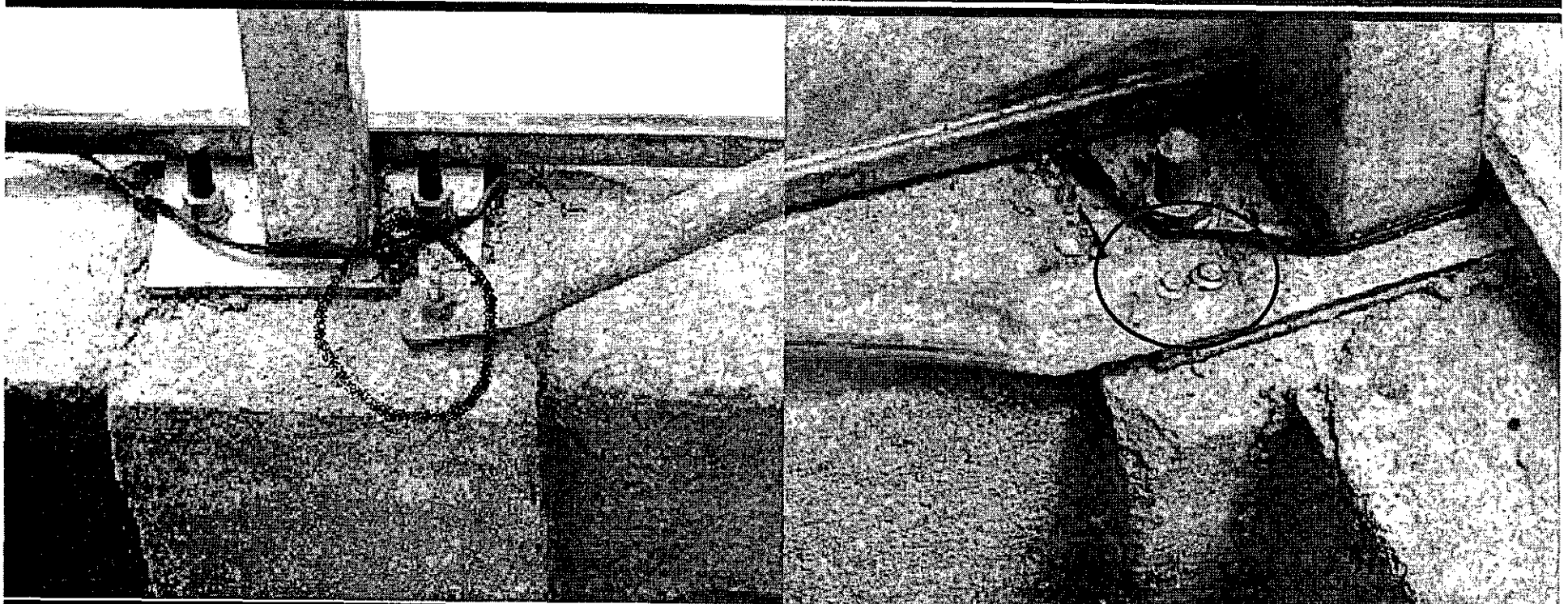
Galvanization

1. This component is cold still galvanized (Zenzimir) and was cut after the galvanization.
2. Components cut after the galvanization get rusted in the cutting point. Therefore they must be produced in row still and hot still galvanized afterward.



Bolds must be dimensioned according the the components' strength required

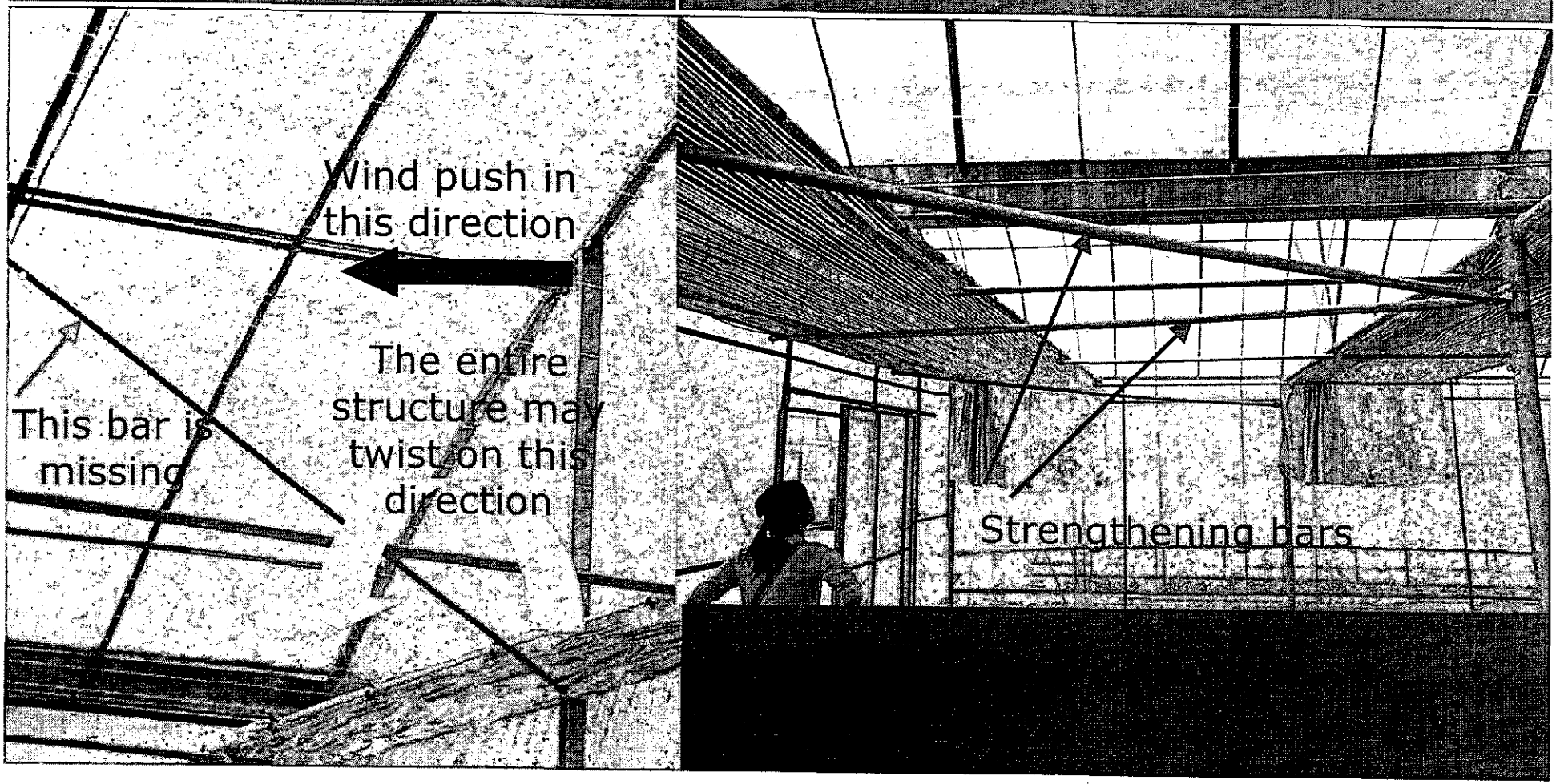
Correct bold size	Wrong bold size, too small



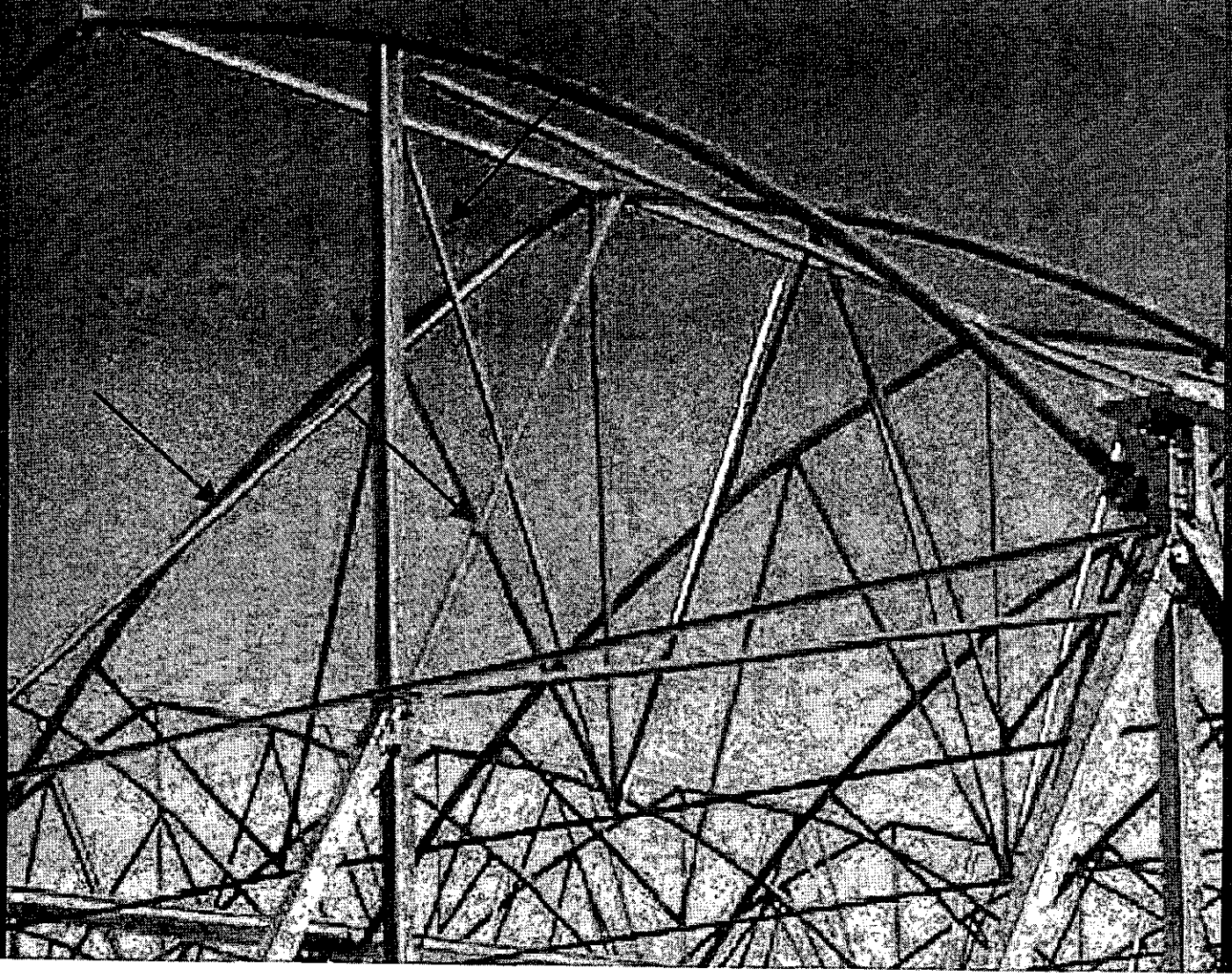
Structure strengthening components

Wrong - No bars

Bars correctly positioned



Structure strengthening components - bars



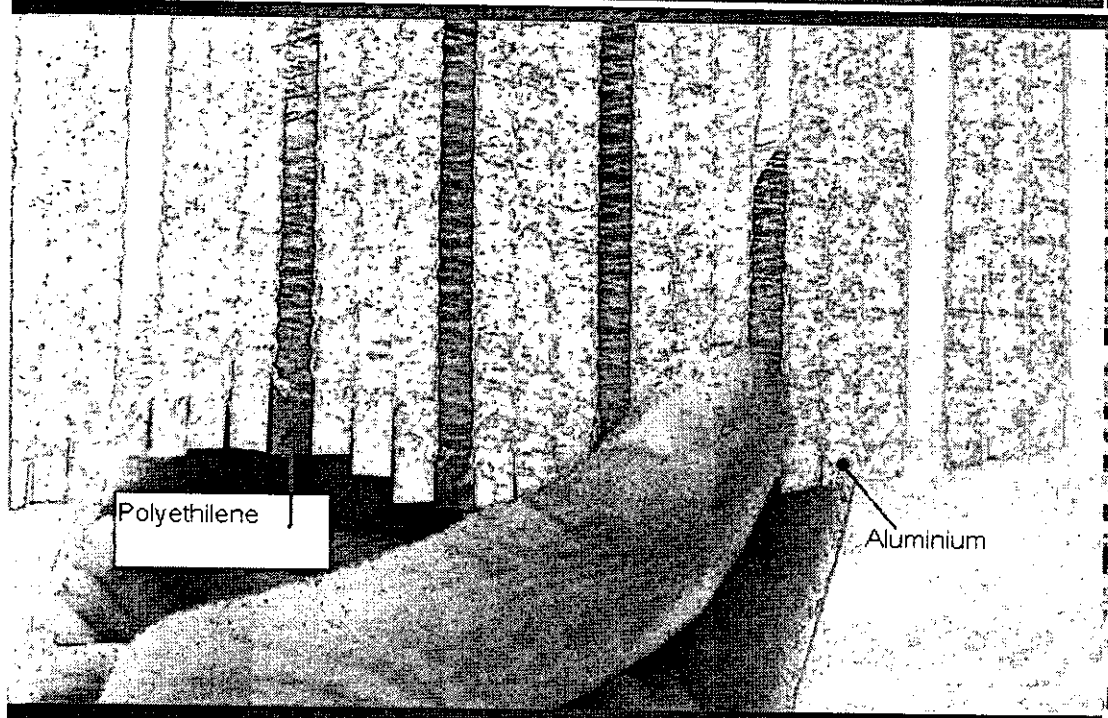
Thermal screen

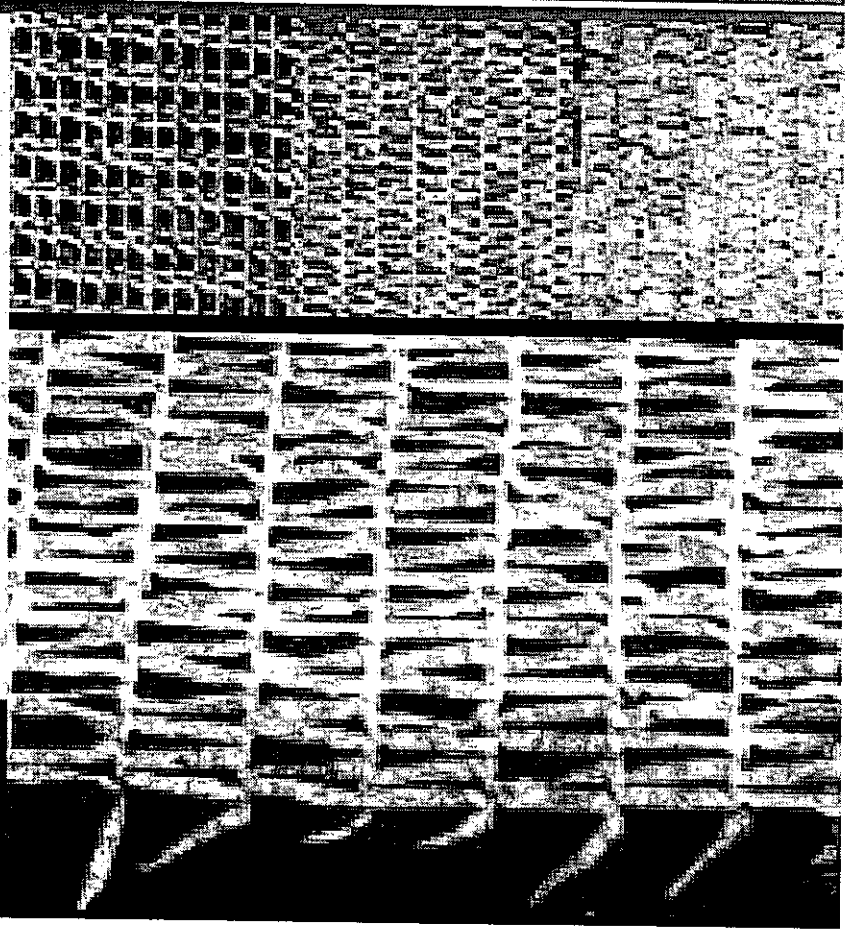
Close structure: aluminum + polyethylene

Scope: to

Open structure: aluminum

Scope: to





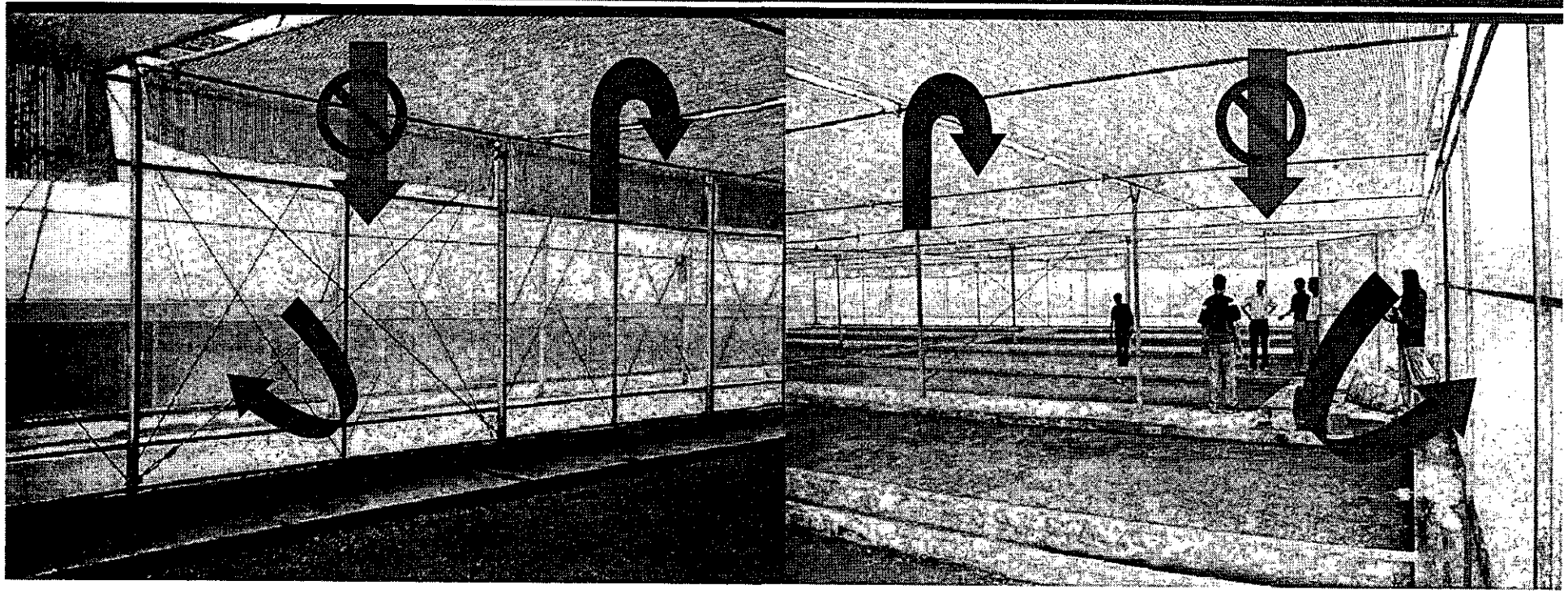
Close structure
Aluminum + Polyethylene

Strength: to temperature. It must fully cover ceiling and walls.

In the specific case shown below, the design chosen makes the screen inefficient, because heat escape through the uncovered side and front walls. No considerable increase of temperature is achieved.

Weakness: to temperature.

Very inefficient, the air circulation is limited therefore the heat do not escape through roof windows. The greenhouse overheat.

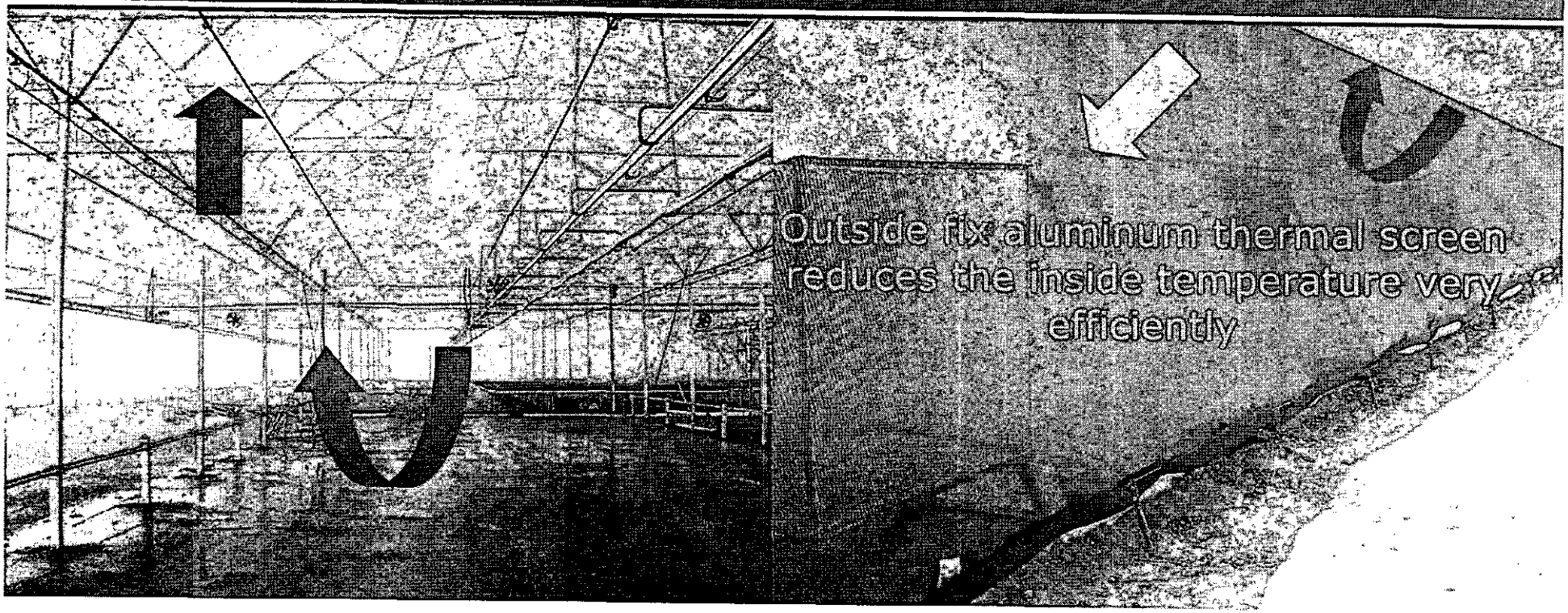


Open structure aluminum screen

Strength: to reduce temperature. No need to cover the side walls, eventually the south wall.

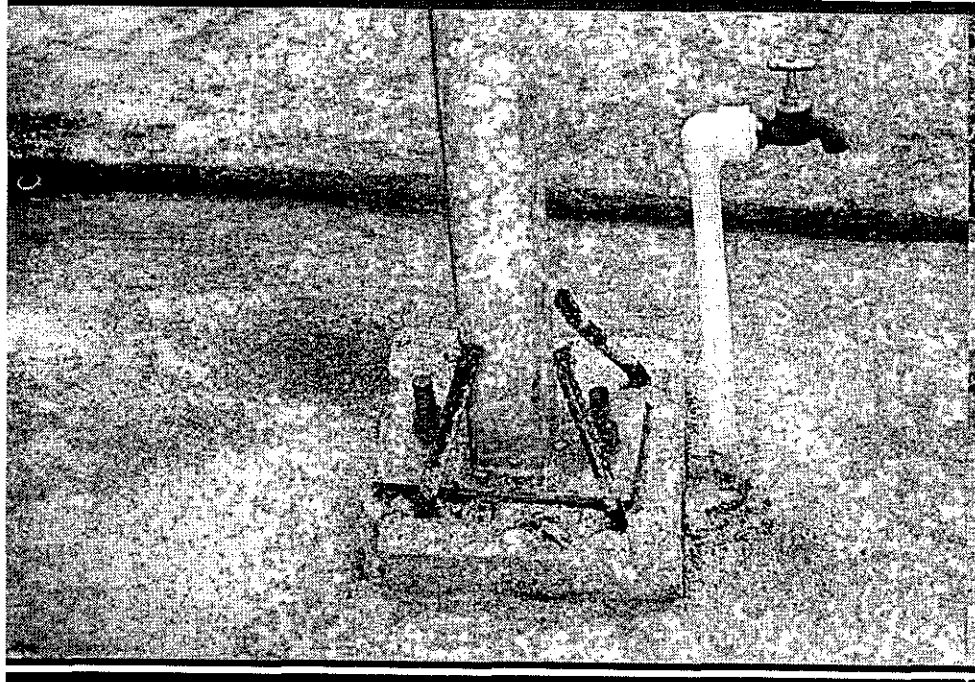
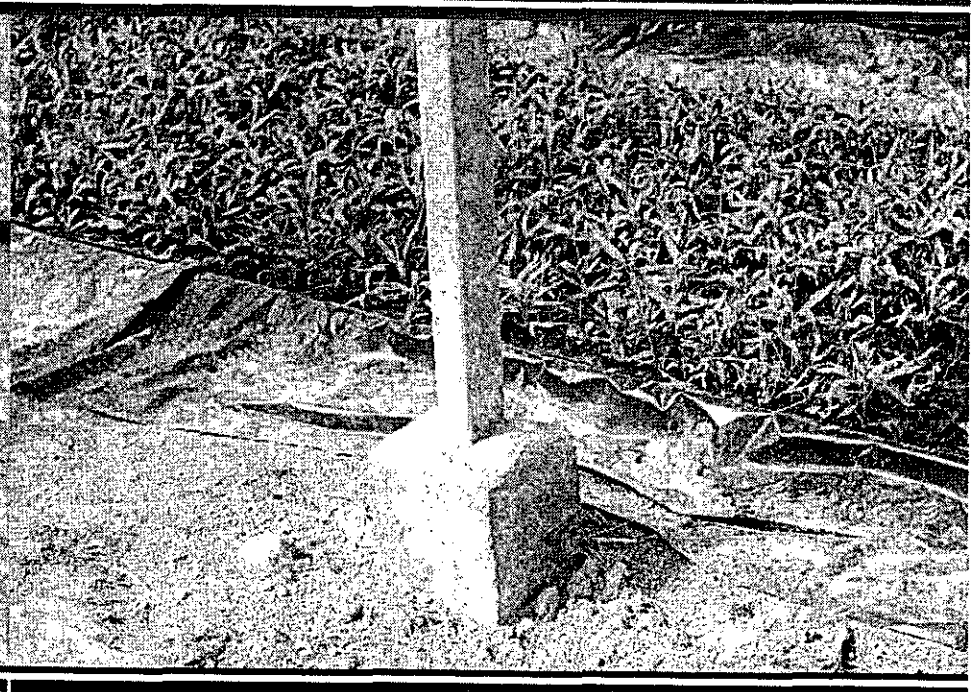
Very efficient, the air circulate through the screen and roof and side windows. A considerable reduction of the inside temperature is achieved.

Weakness: to [illegible] temperature. Very limited, the heat escape through the open structure of the screen.



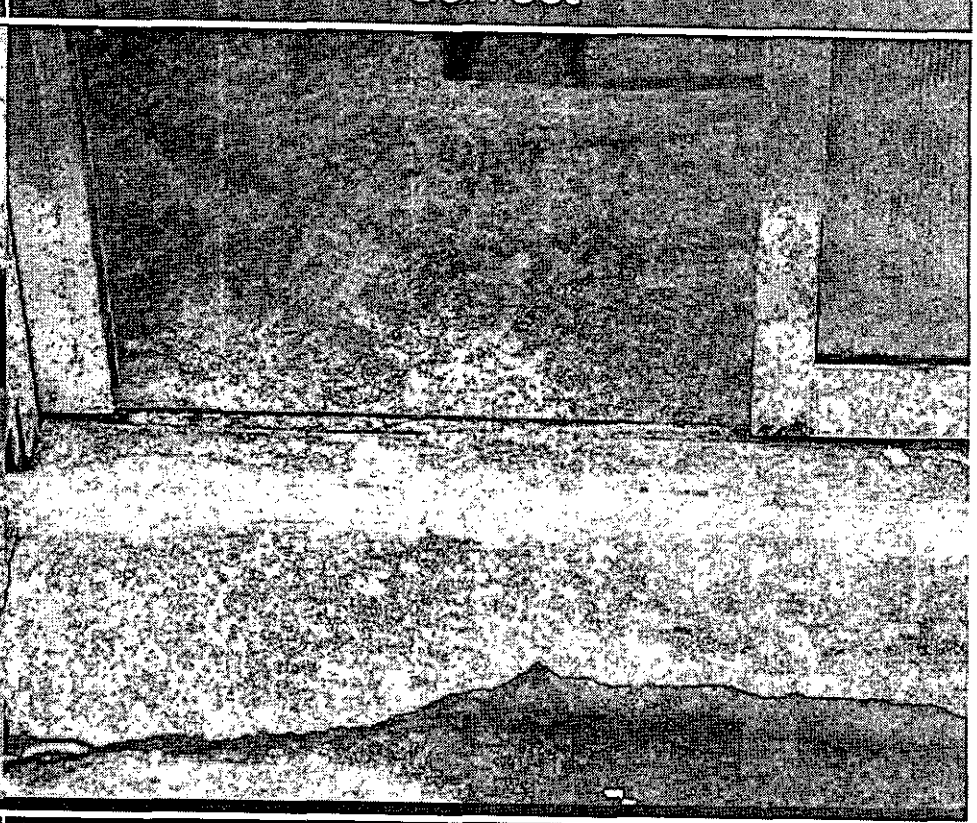
Civil works and installation

An accurate installation is the precondition to achieve the best possible performances from the equipment available

Wrong	Correct
	
The post is loose	The post is stable
Bolds and metal part are rusted	The base is protected against rust, corrosion and machinery

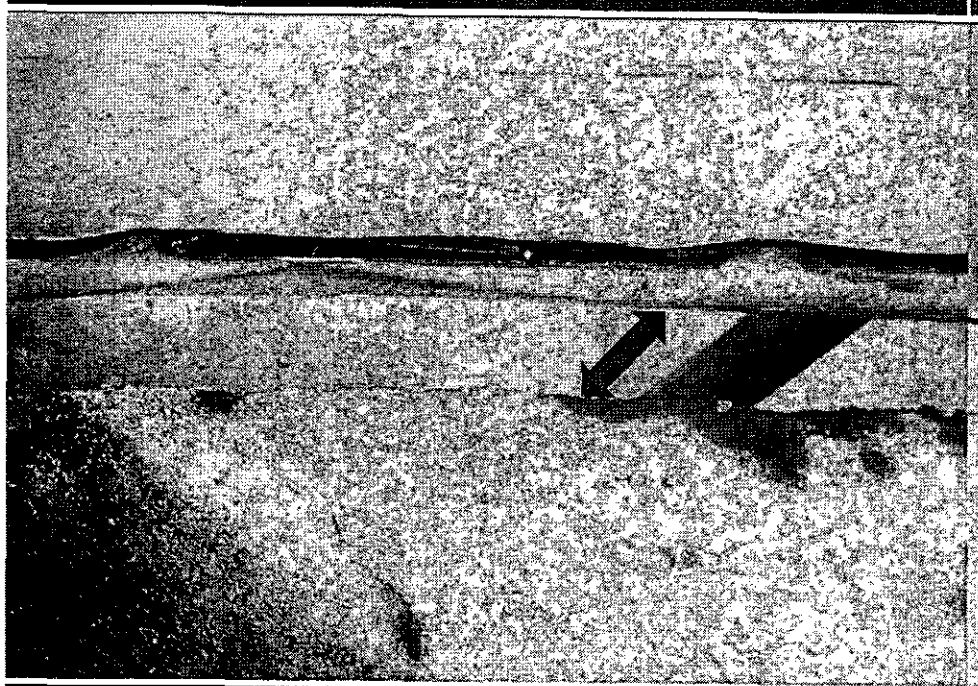
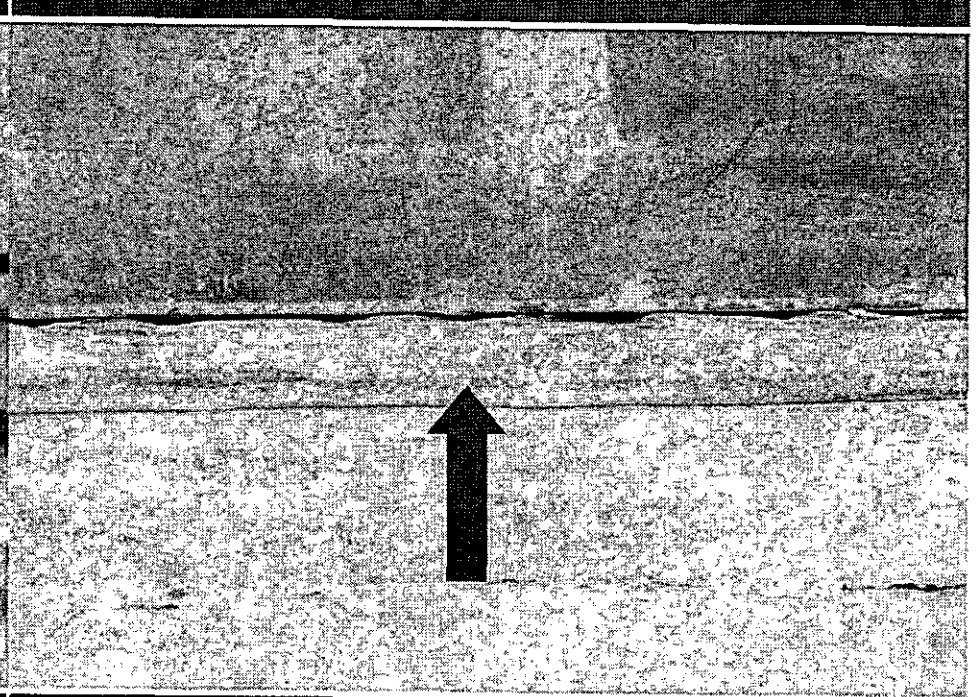
Civil works and installation

Installation of rails under entrance doors

Wrong	Correct
	
Open space between the rail and the concrete path, insect easily enter into the greenhouse	The junction between the rail and the concrete path is perfectly sealed

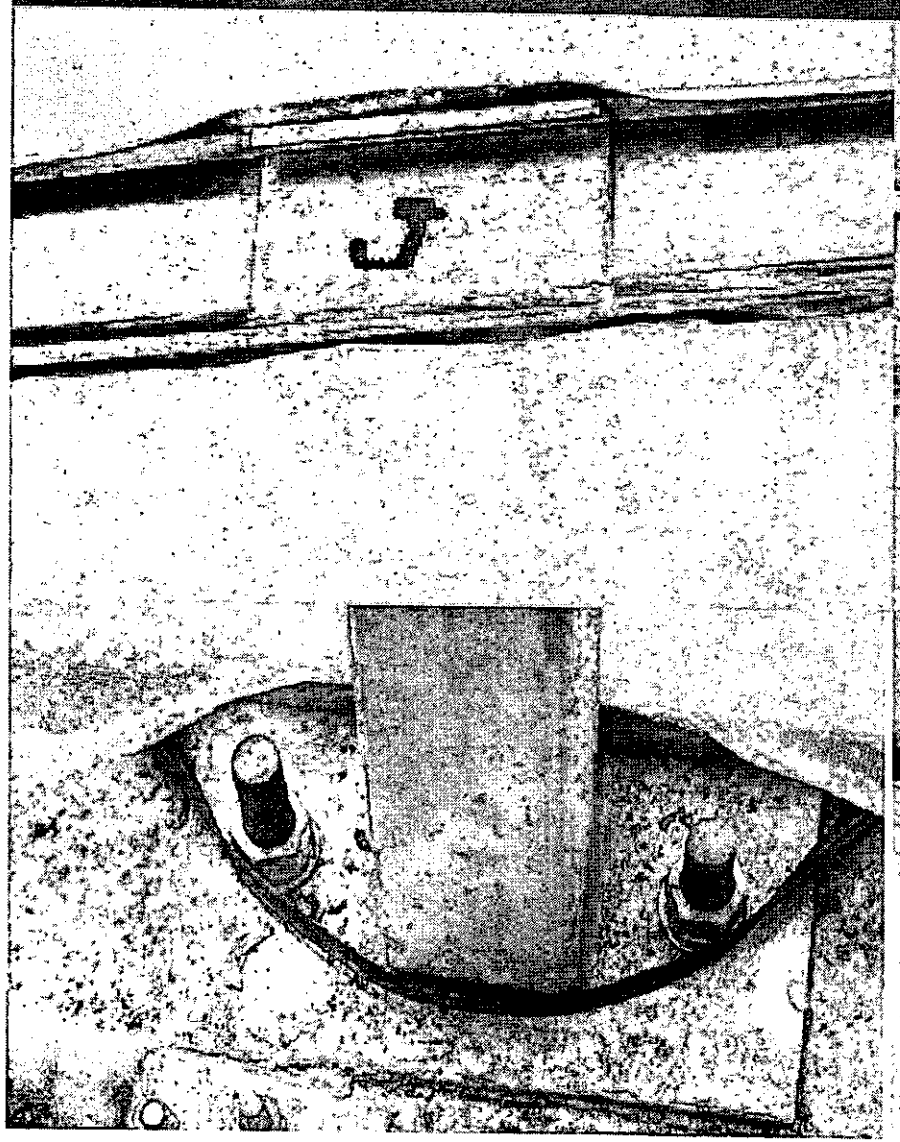
Civil works and installation

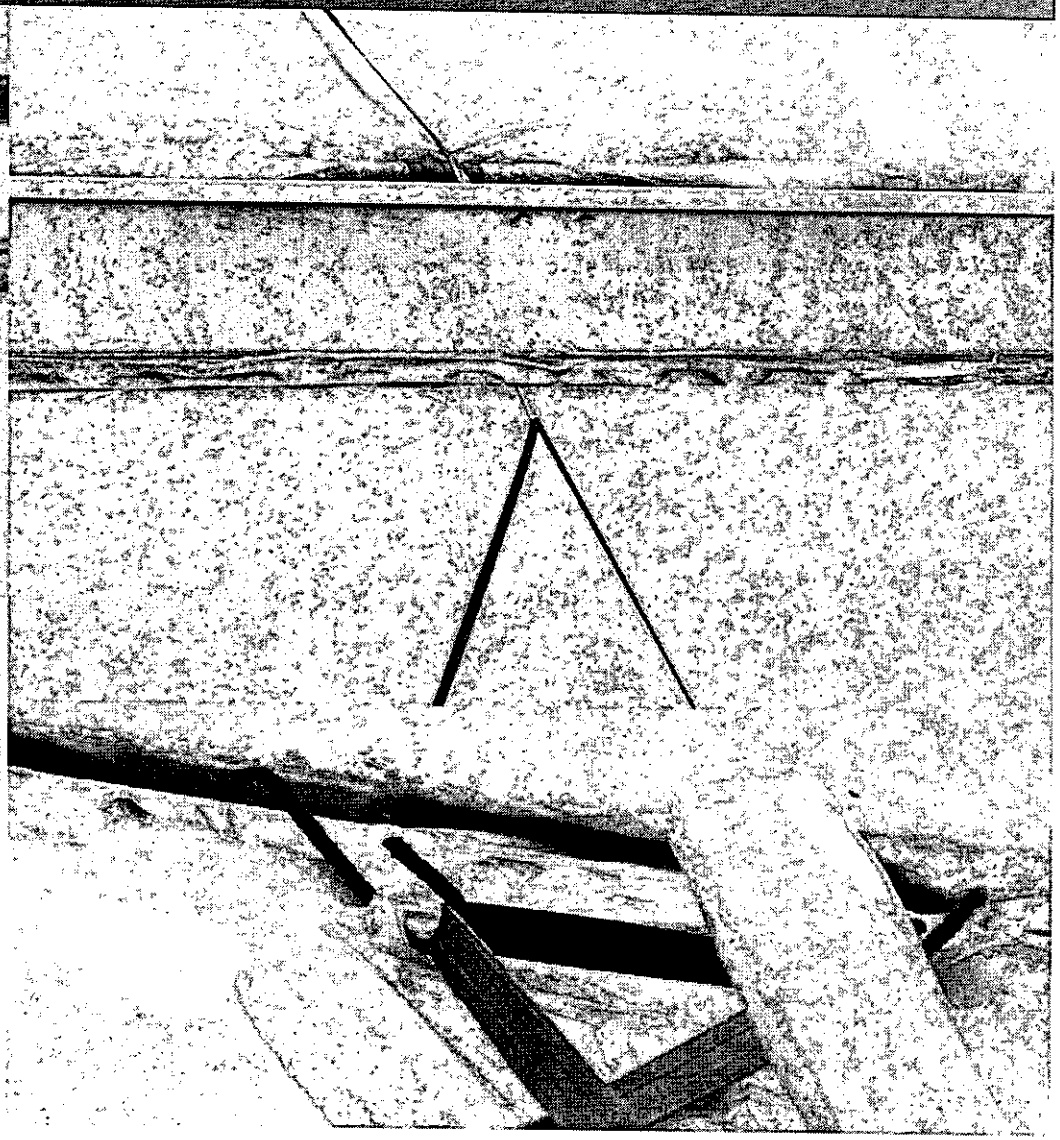
Junction between side walls and side paths

Wrong	Correct
	
Open space at the bottom of the side wall, insects, rats and other animals could easily enter into the greenhouse	The junction between the side wall and the side path is perfectly sealed

Civil works and installation

Fixing device for side curtains: the system is unsuitable, the hooks are too week and get quickly rusted, therefore the strings are loose and so the side curtains insecure.

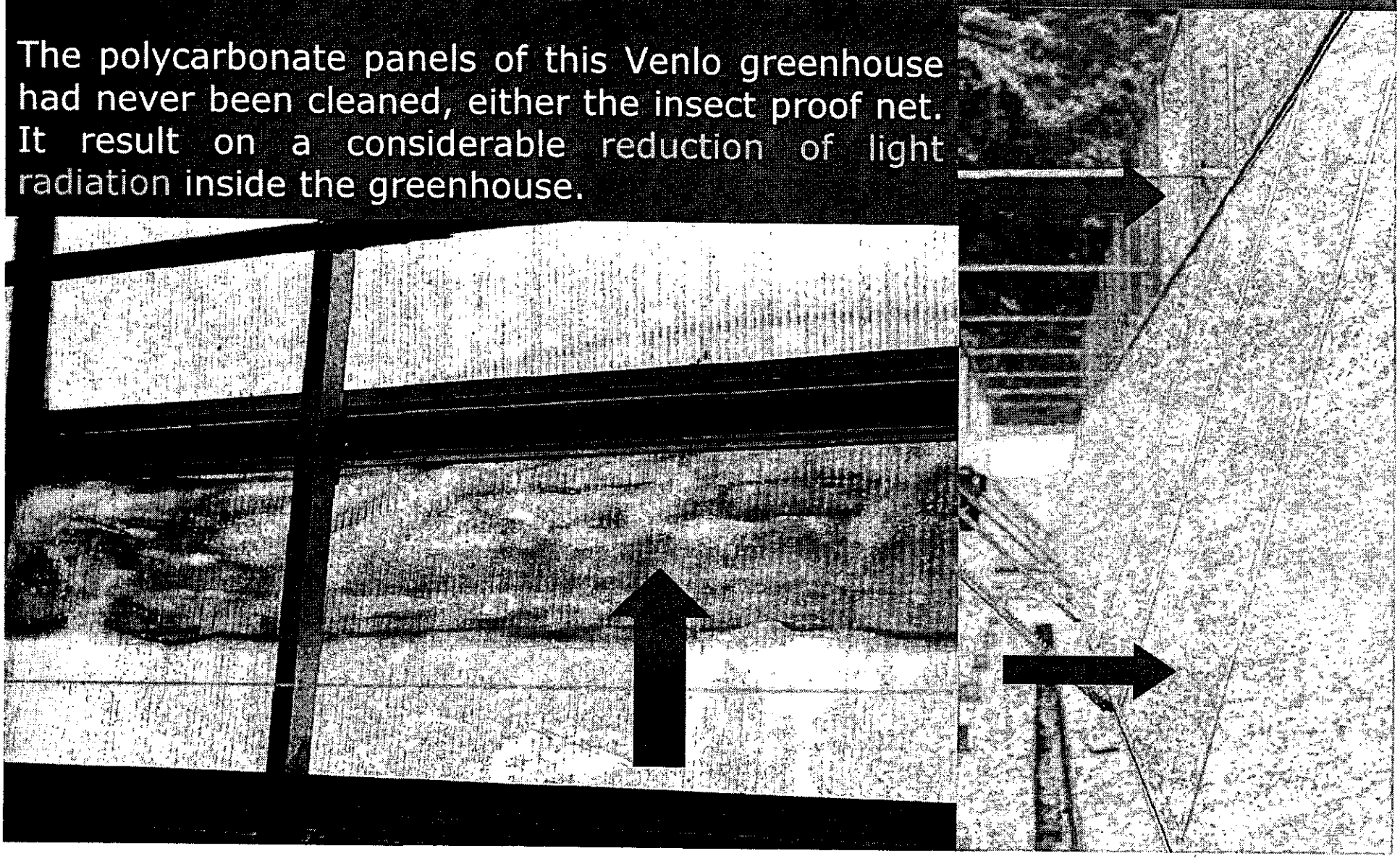




Civil works and installation

Maintenance must be carry out regularly and promptly

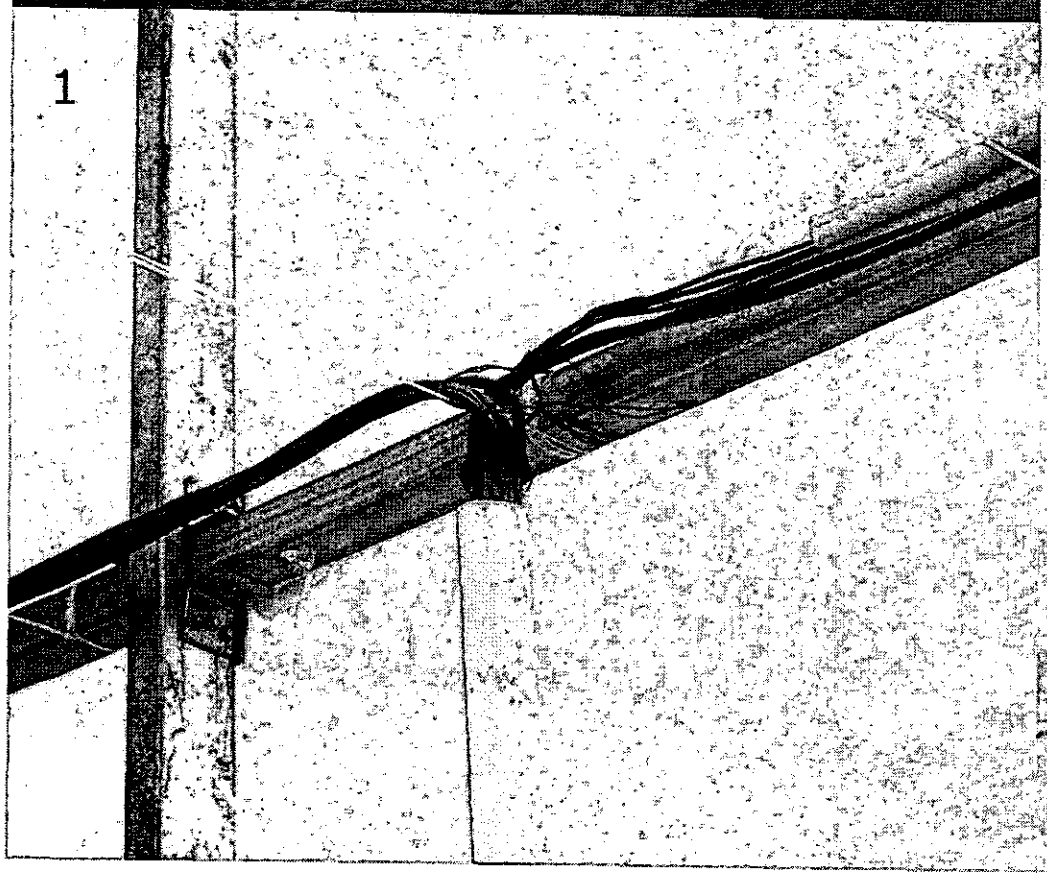
The polycarbonate panels of this Venlo greenhouse had never been cleaned, either the insect proof net. It result on a considerable reduction of light radiation inside the greenhouse.

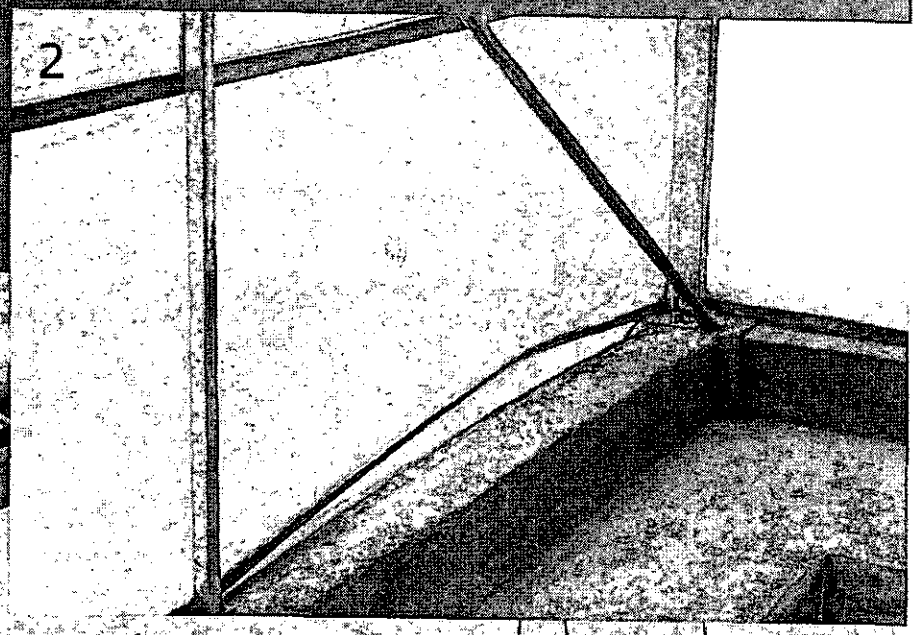


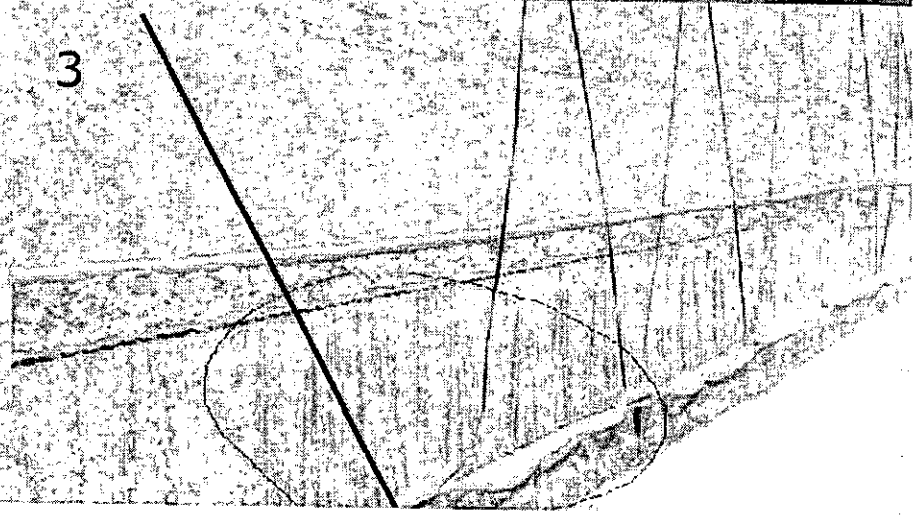
Civil works and installation

Maintenance must be carry out regularly and promptly

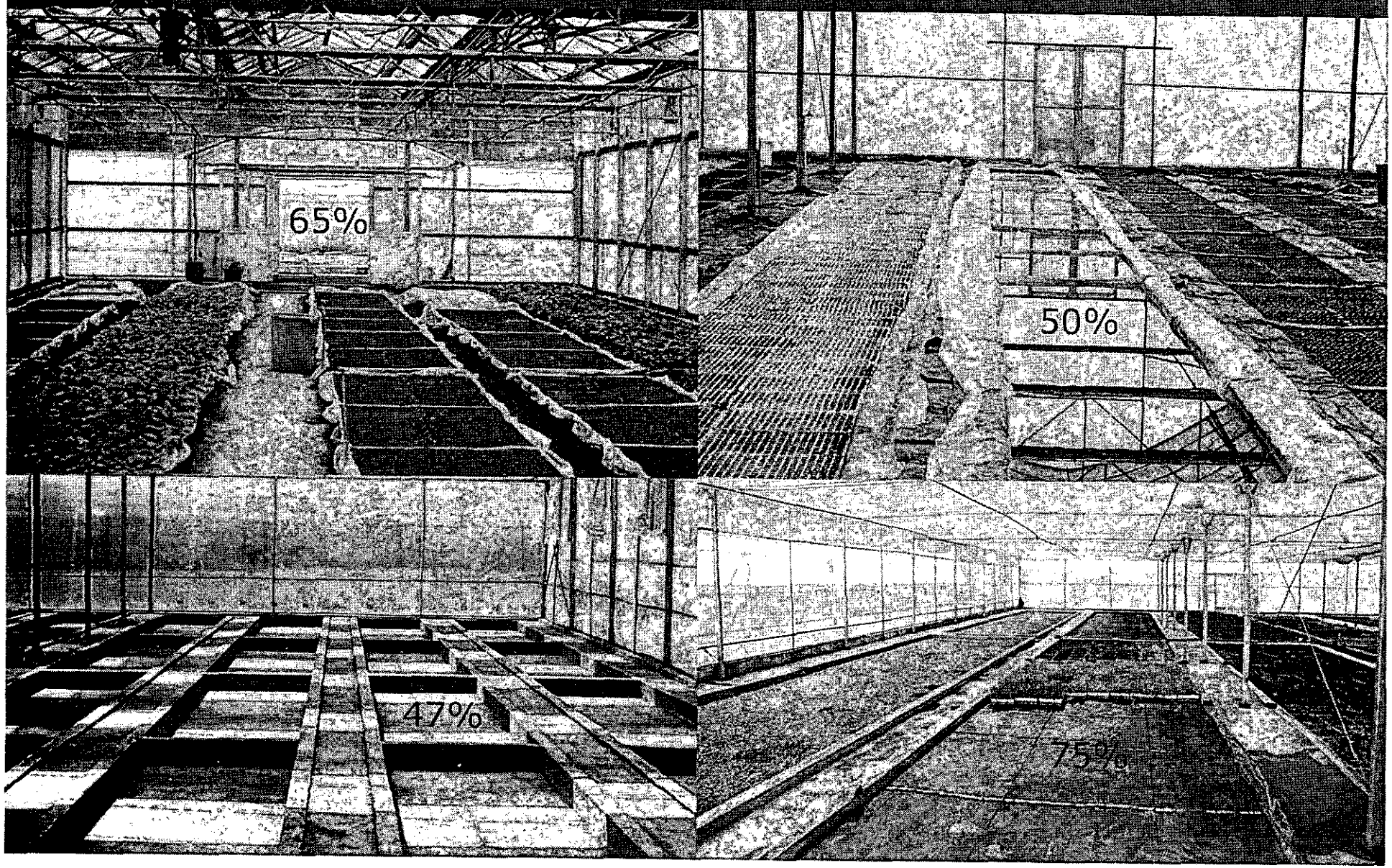
1. Electric wires unprotected.
2. Side profile damaged and bended.
3. Strings loose and partly missing







Space management and efficiency

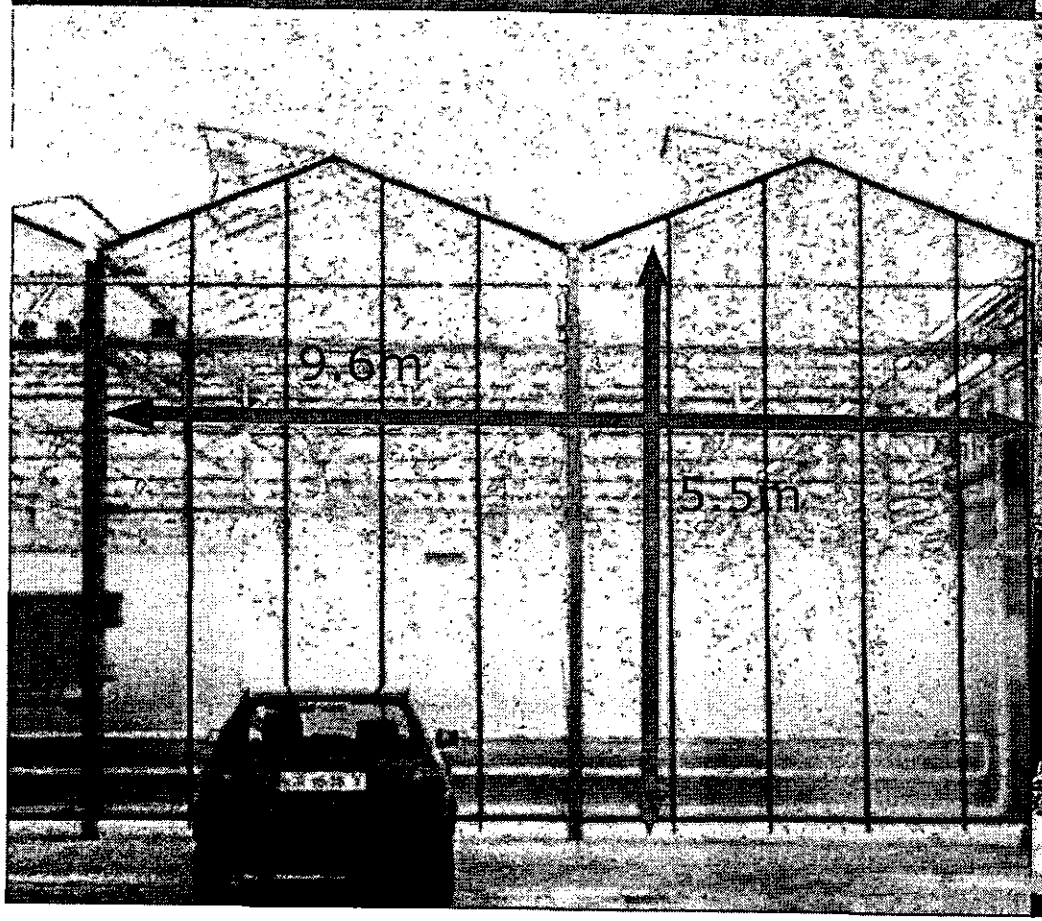


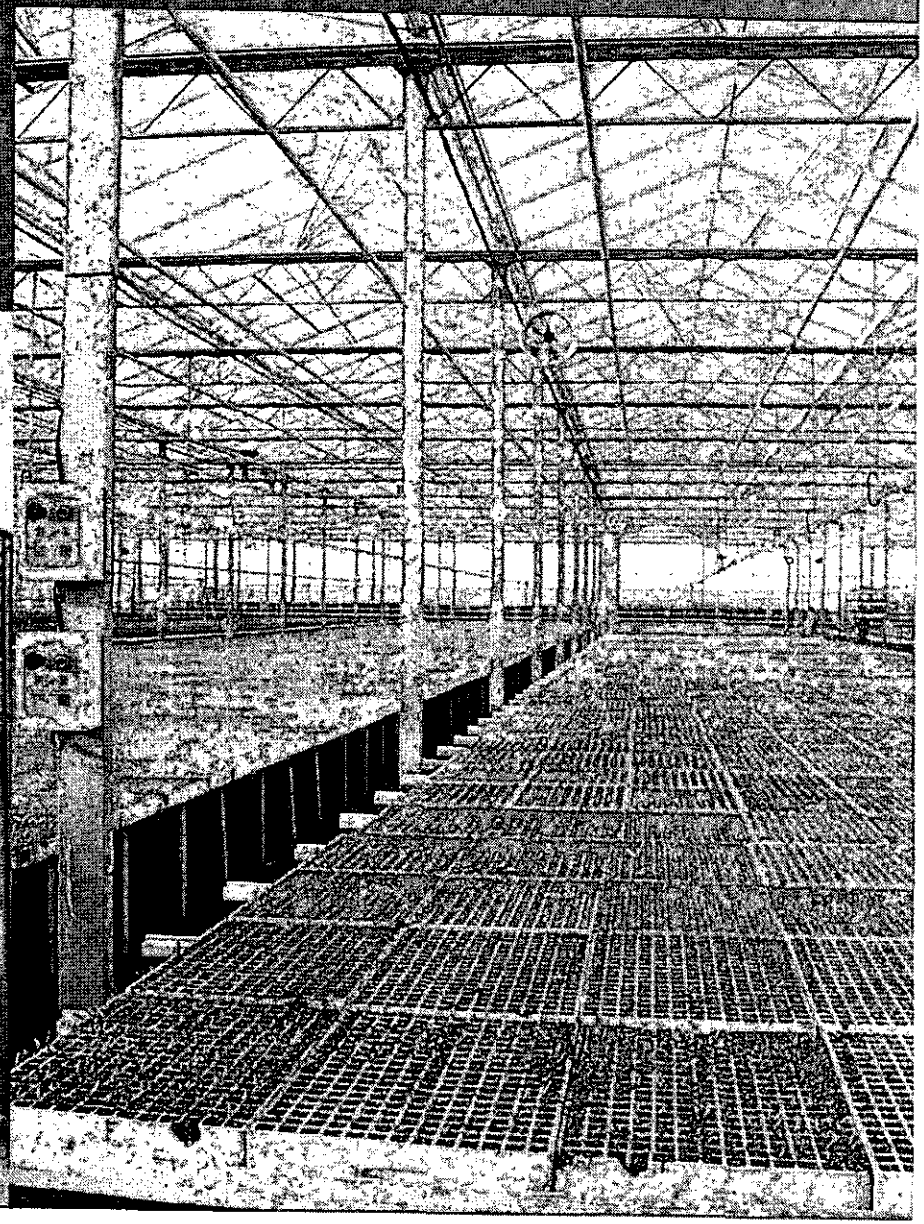
Greenhouse volume

The highest the volume the better the climatic control

Venlo type glass

1. Ratio Volume/Area = 6.1m^3/m^2
2. High energy efficiency glasshouse
3. High light radiation

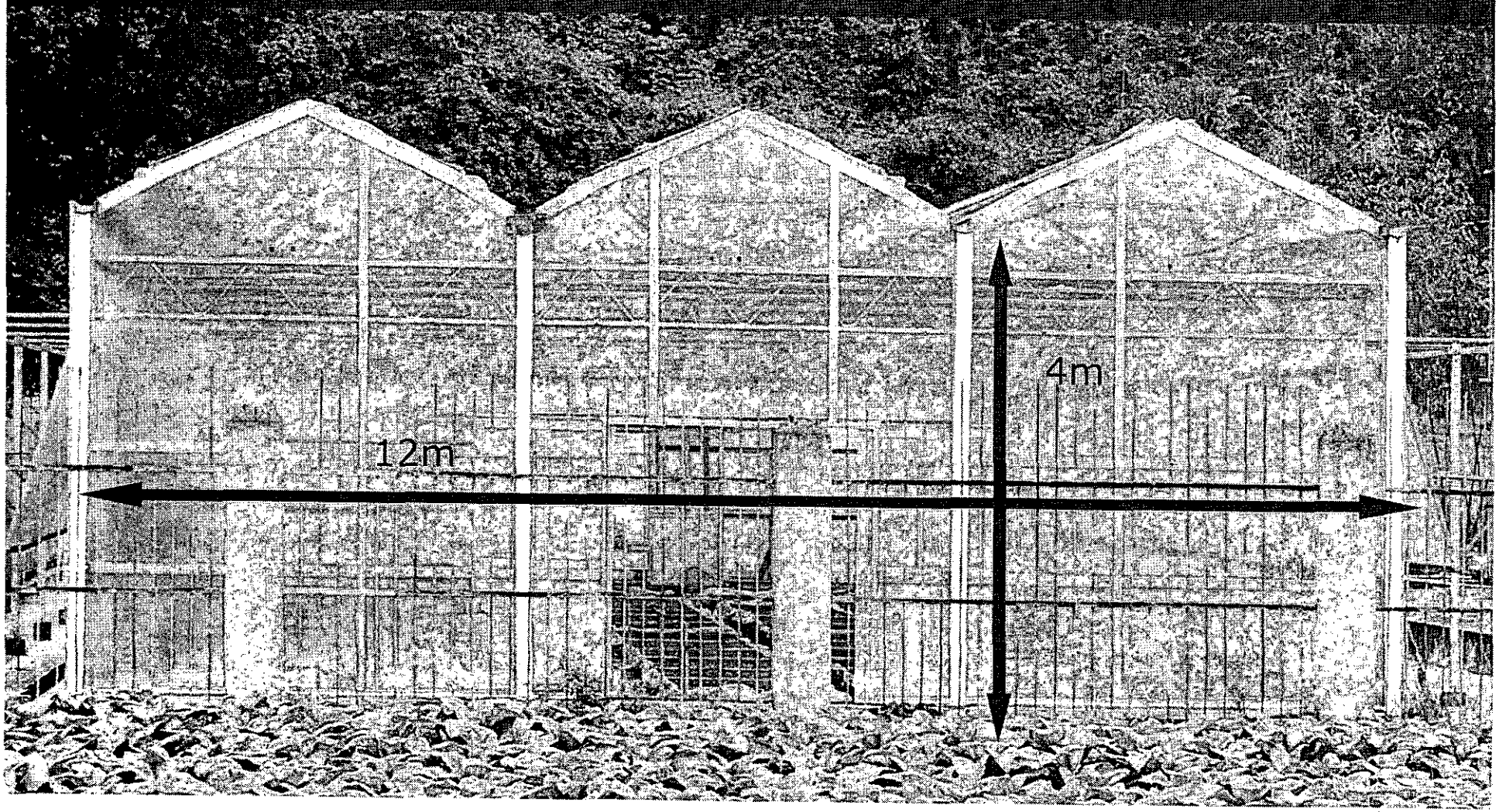




Greenhouse volume

Venlo type polycarbonate

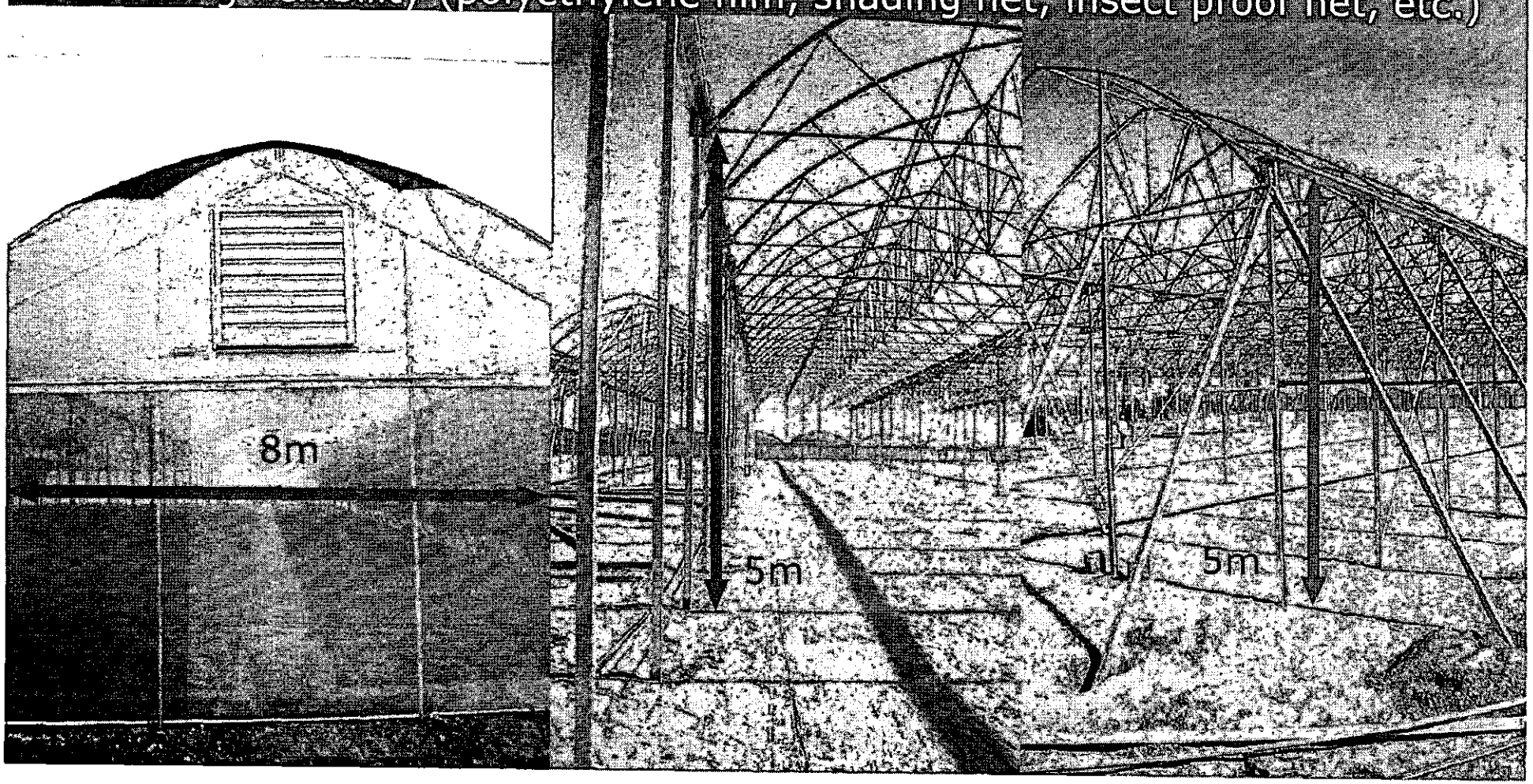
1. Ratio Volume/Area = 4.6m^3/m^2



Greenhouse volume

Multiunit plastic house - Gothic shape arch

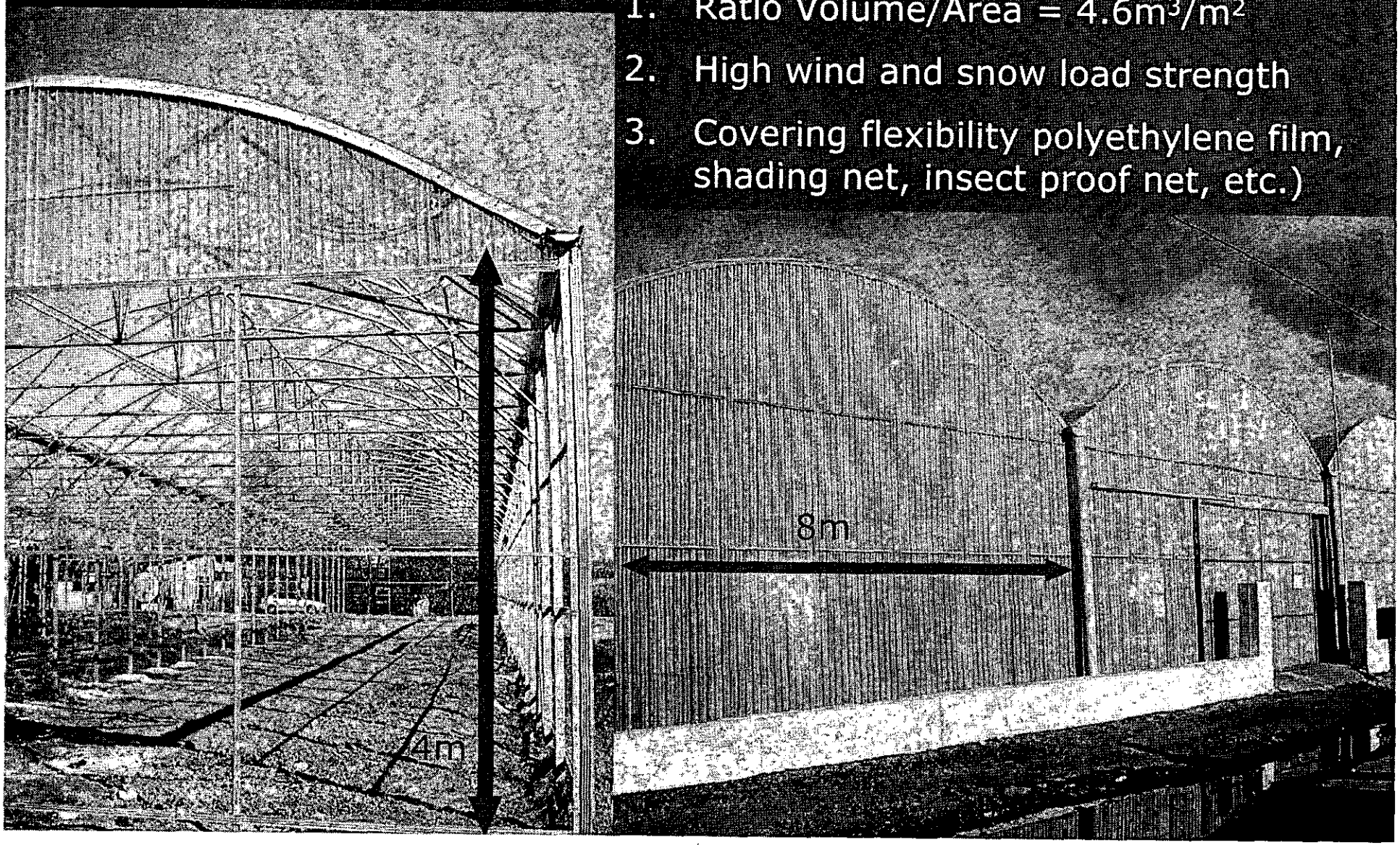
1. Ratio Volume/Area = 6.1m^3/m^2
2. High wind strength
3. Covering flexibility (polyethylene film, shading net, insect proof net, etc.)



Greenhouse volume

Multiunit plastic house - Round shape arch

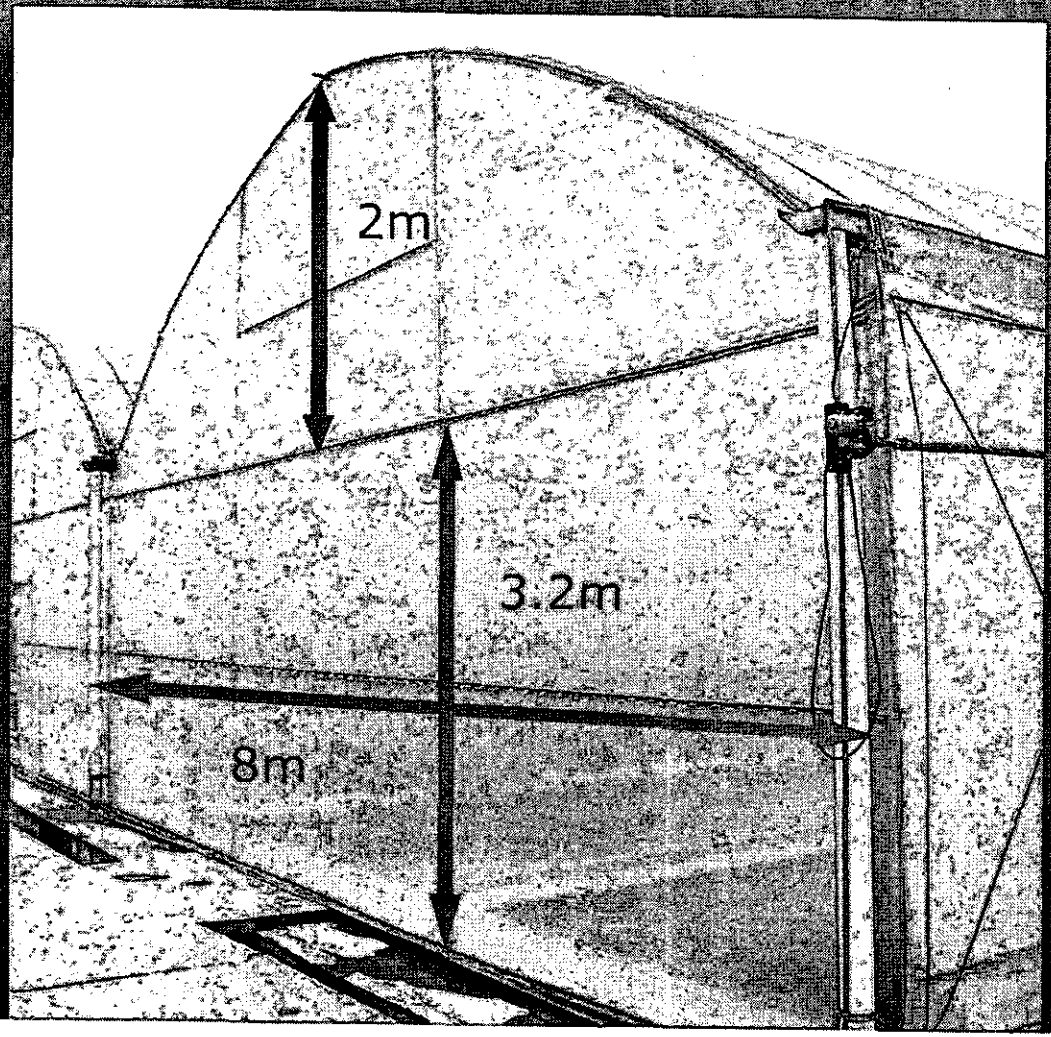
1. Ratio Volume/Area = 4.6m^3/m^2
2. High wind and snow load strength
3. Covering flexibility polyethylene film, shading net, insect proof net, etc.)



Greenhouse volume

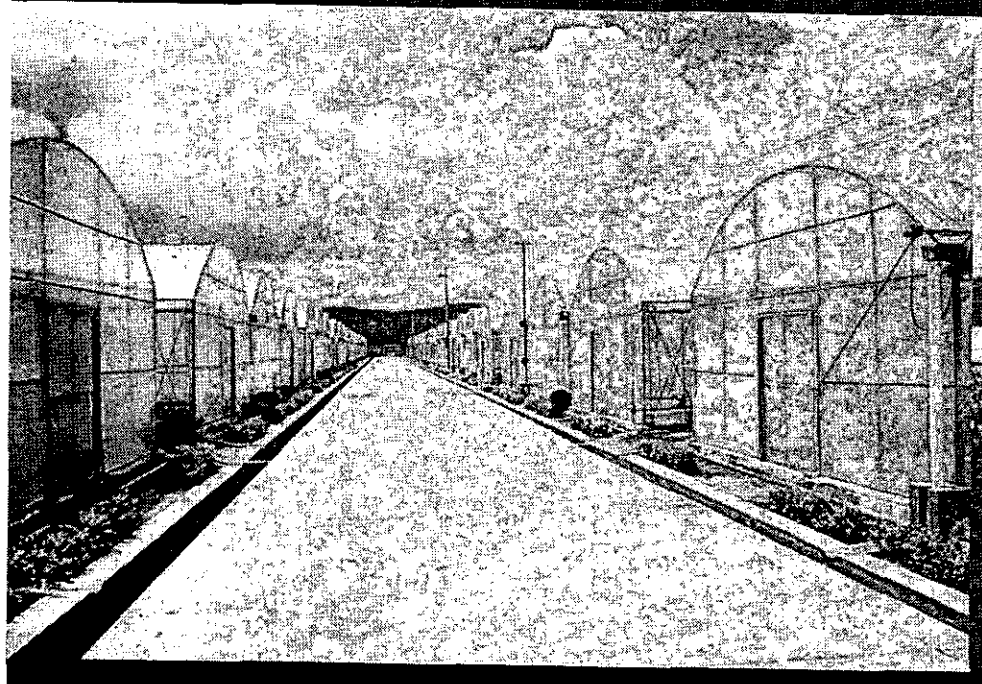
Multiunit plastic house - Round shape arch

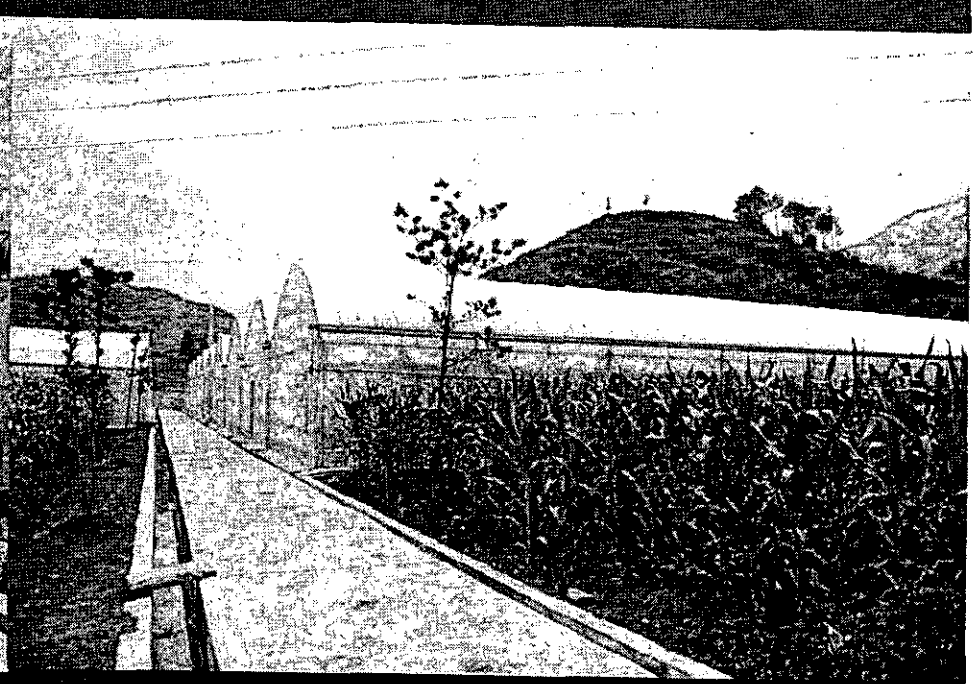
Ratio Volume/Area = 4.3m^3/m^2



Pest management and virus management

It is recommended not to grow any plants around greenhouses, it may facilitate the propagation of insects and pathogens (Virus) inside the greenhouses. The surrounding must be clean of green plants of any sort, mainly ornamentals and flowers, and weeds.

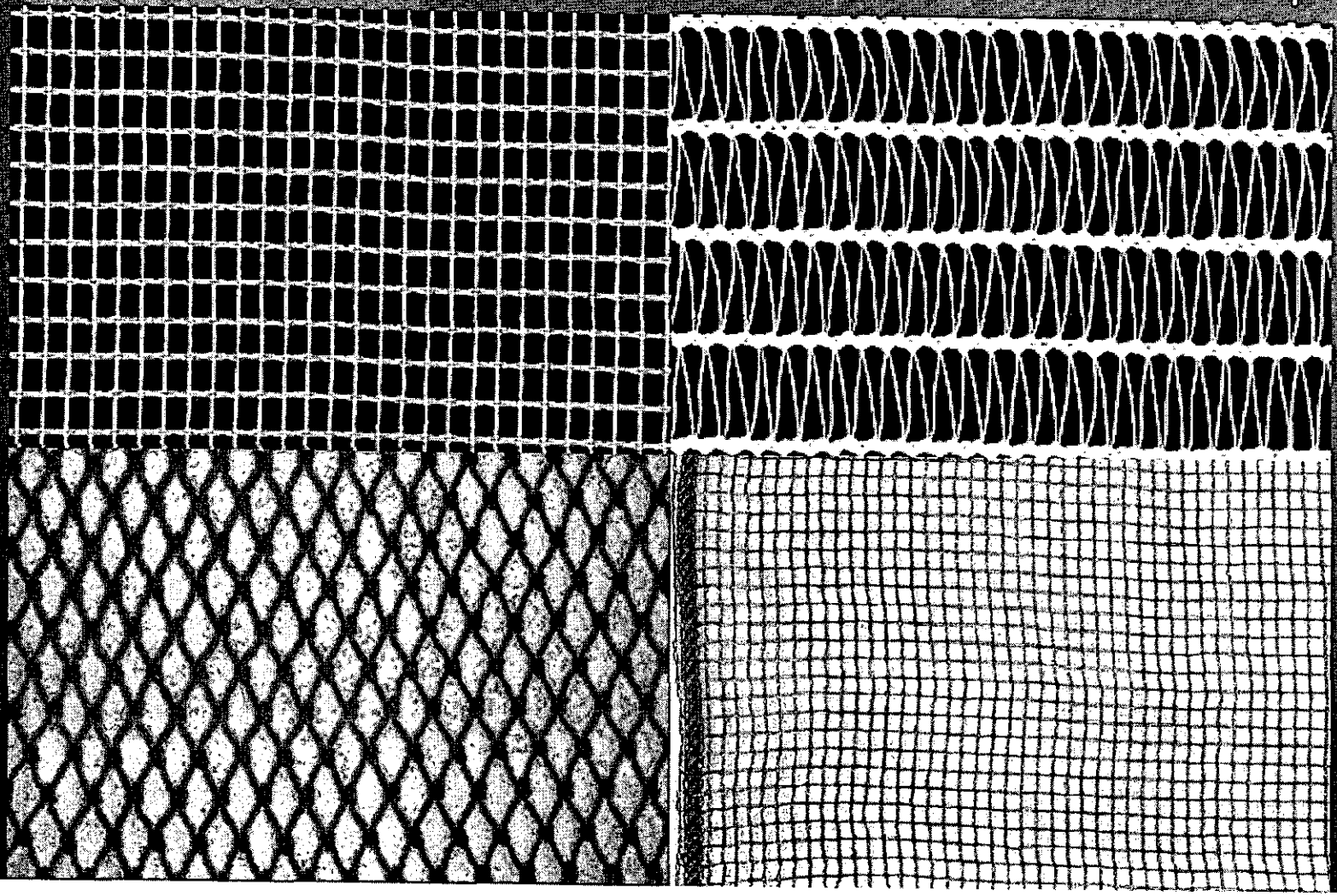




Insect proof net

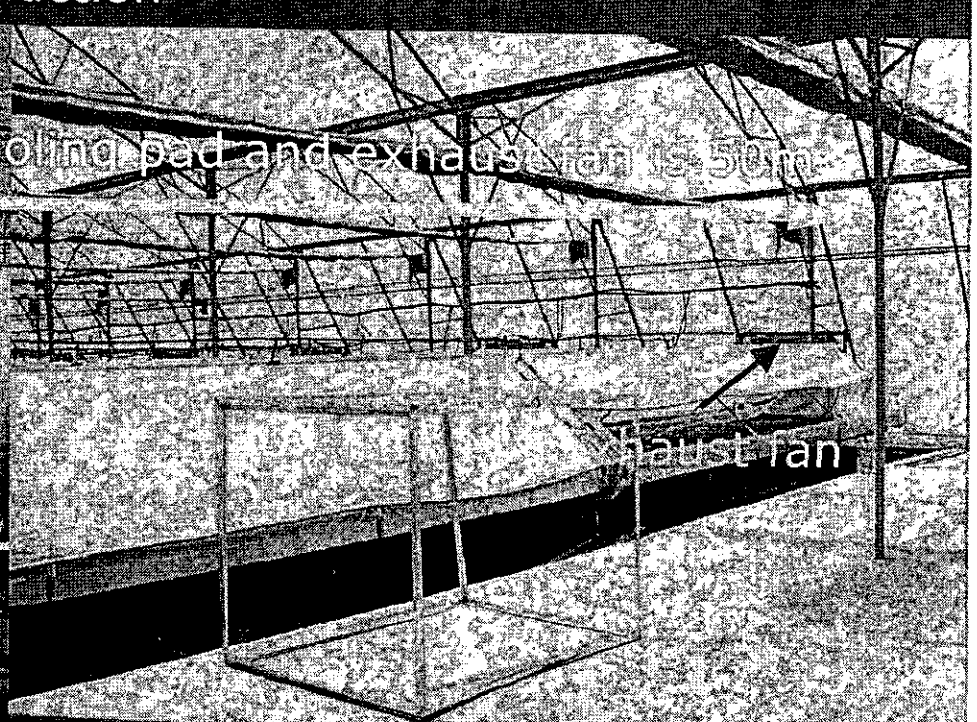
In principal, all kind of nets reduce the air circulation with consequent increase of temperature and relative humidity.

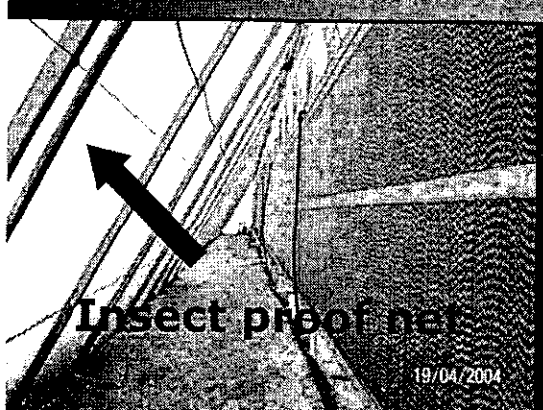
Net must be selected base on the presence of insects transmitting virus, bigger holes are preferable whenever possible



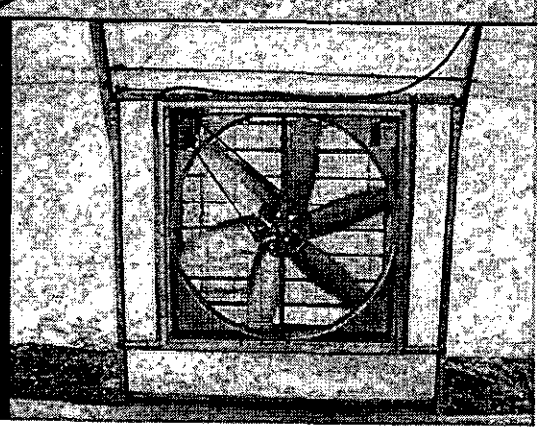
Cooling plants

It may reduce the inside temperature from 5 to 7ºC according to the relative humidity (RU) in the air. The higher the RU the lower the temperature reduction





Orientation

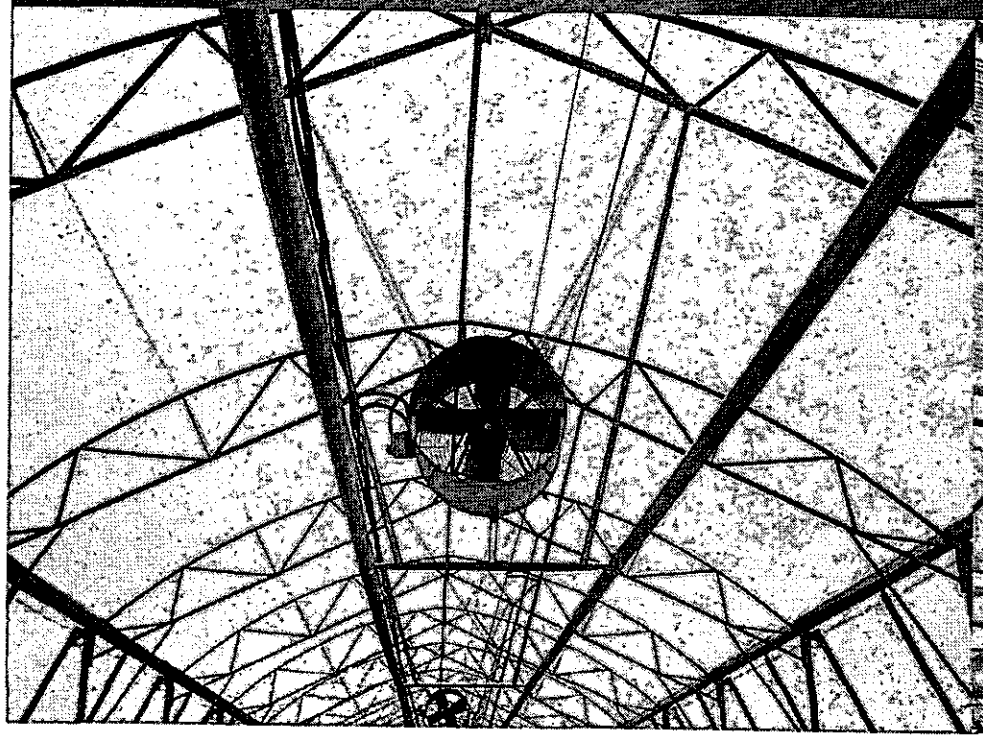


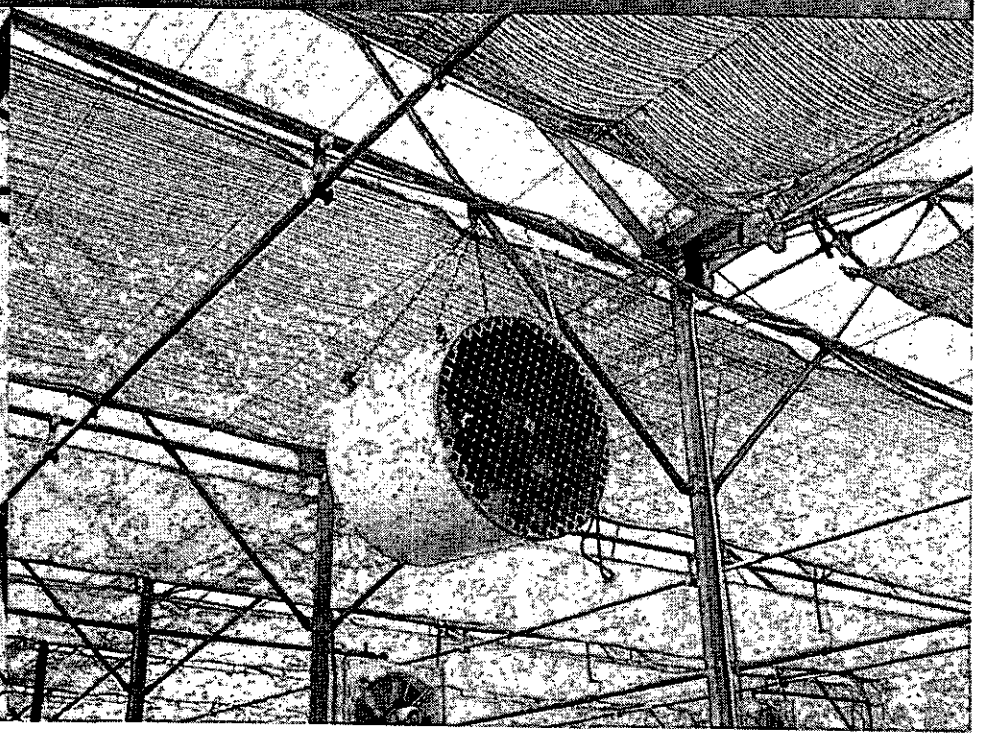
Ventilation plant

It can be used to reduce temperature and relative humidity or making them more uniform within the different layers.

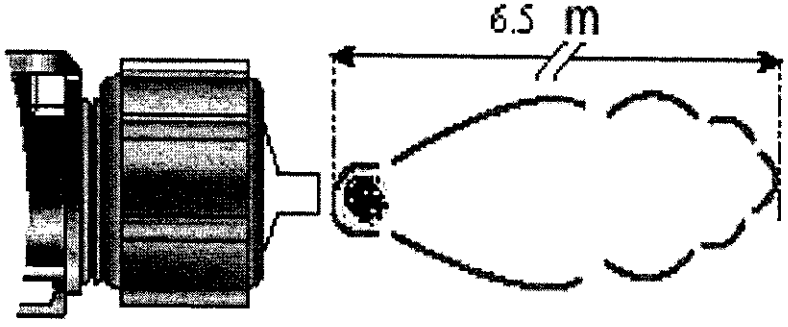
It prevent the humidity to condense on the seedlings, reducing the risk of fungal diseases.

Fans: they brake and mix air layers inside the greenhouse, making the temperature and relative humidity uniform. The advantage apply for both heating and cooling.

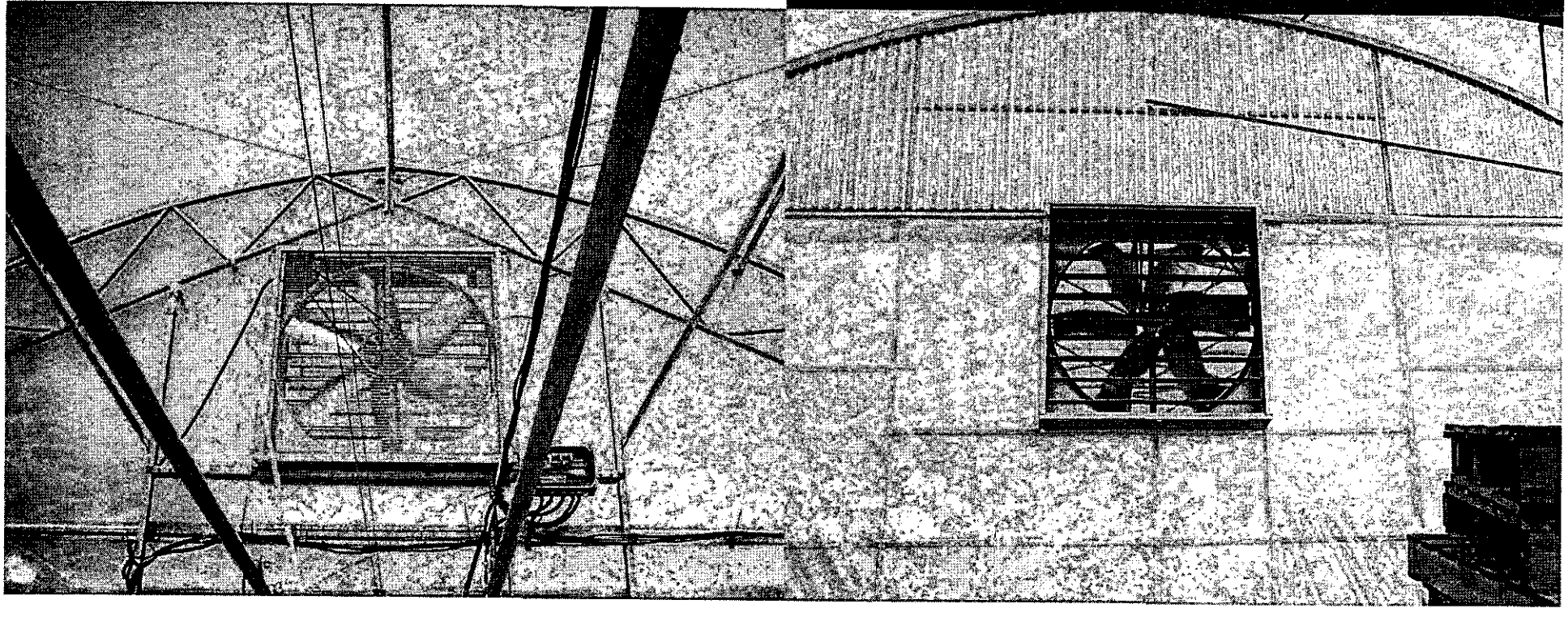




Exhaust fan: they remove the hot air from the greenhouse. They also generate an air circulation with the same beneficial effect as fans.

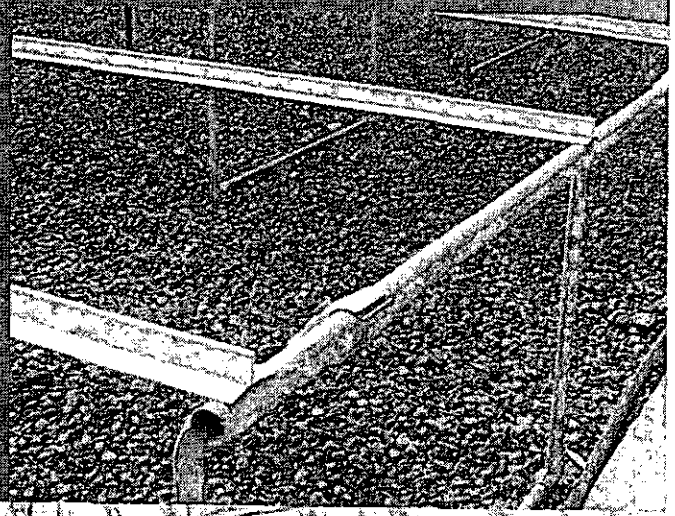


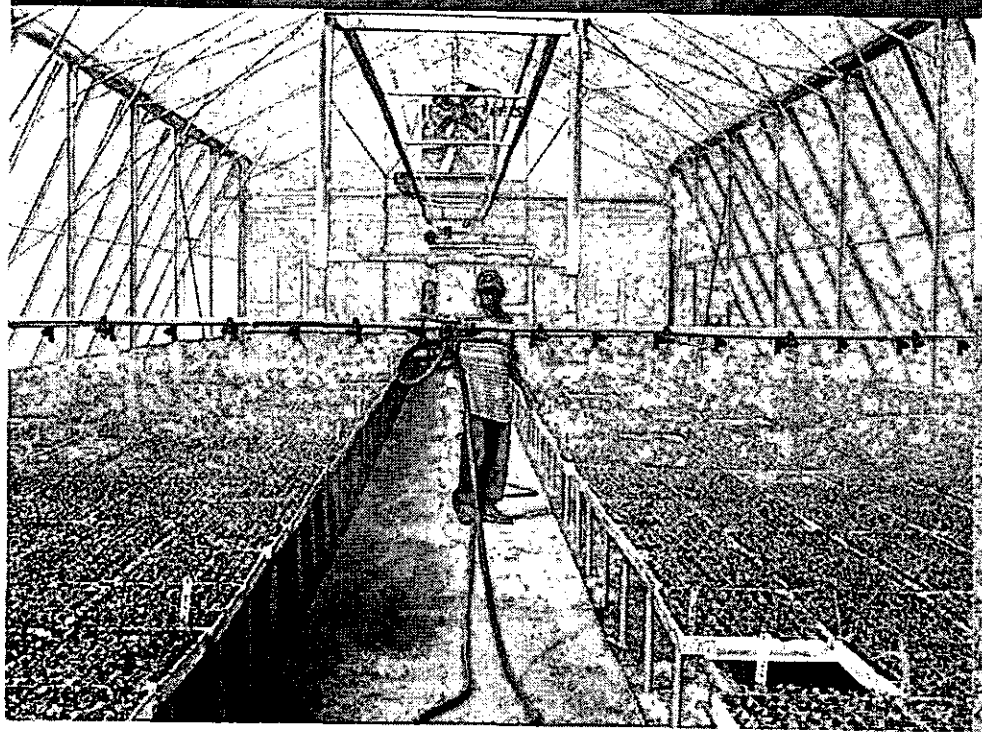
The cooling effect can be strengthen using fog nozzles (air/water) that spray small water particles (max. 50 micron) in the air. The cooling effect is achieved by evaporation

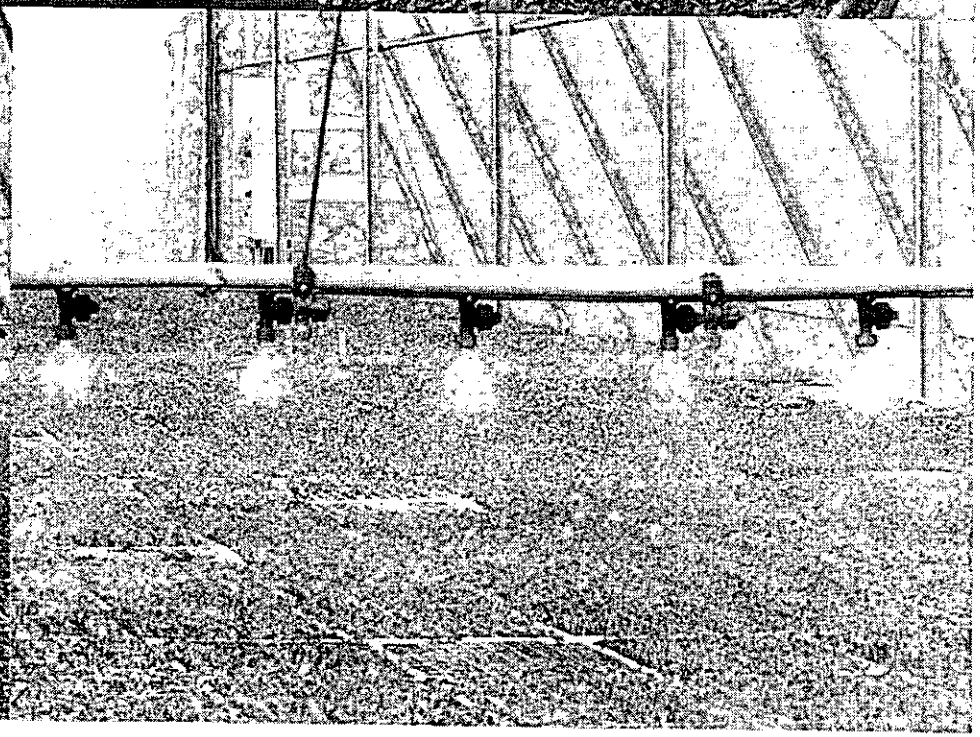


Suspended tray system and Overhead irrigation systems

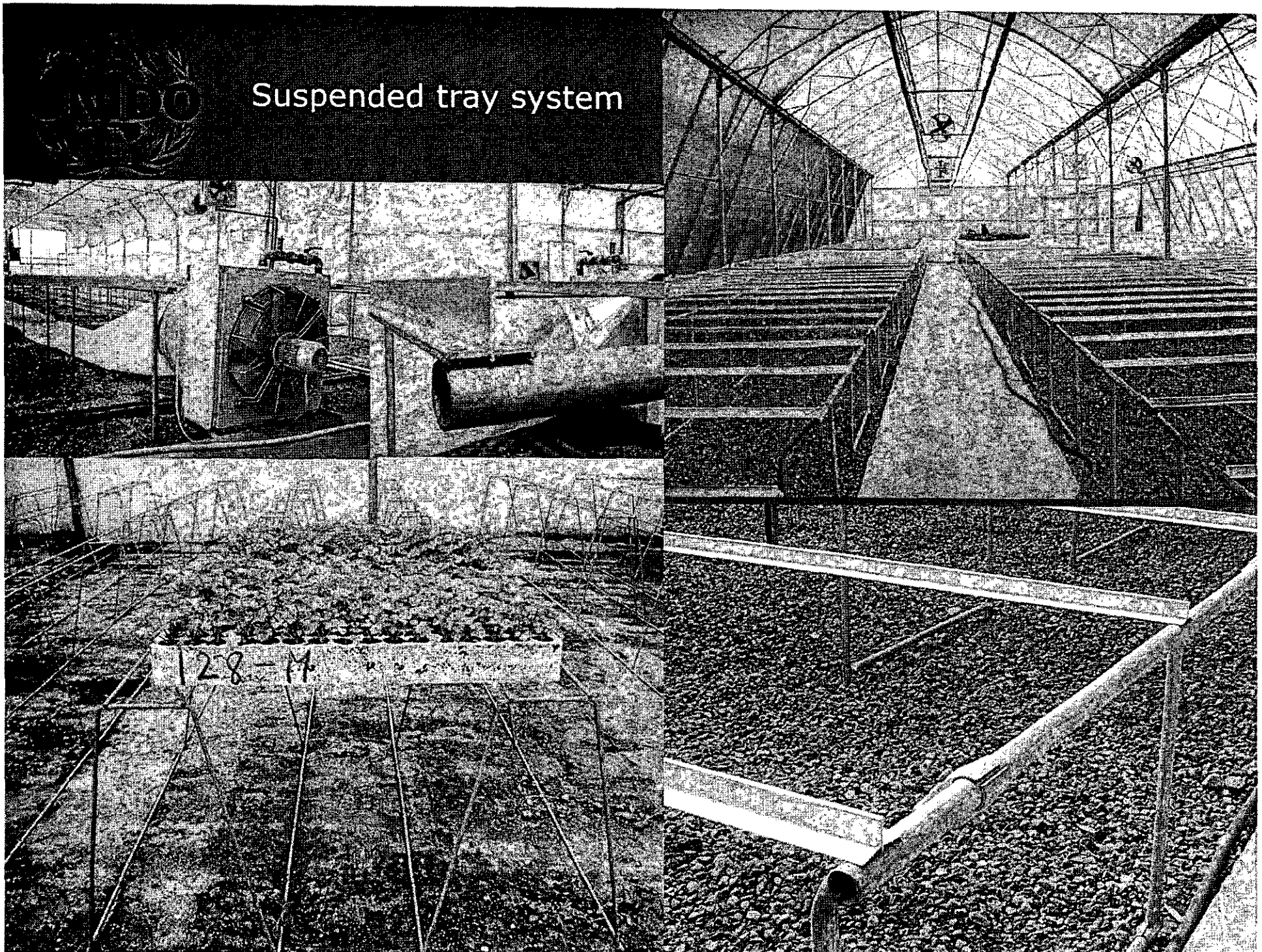
For those cases where the floating tray system is not suitable, tobacco seedlings may be produced with the suspended tray system. The irrigation is done through irrigation bars.

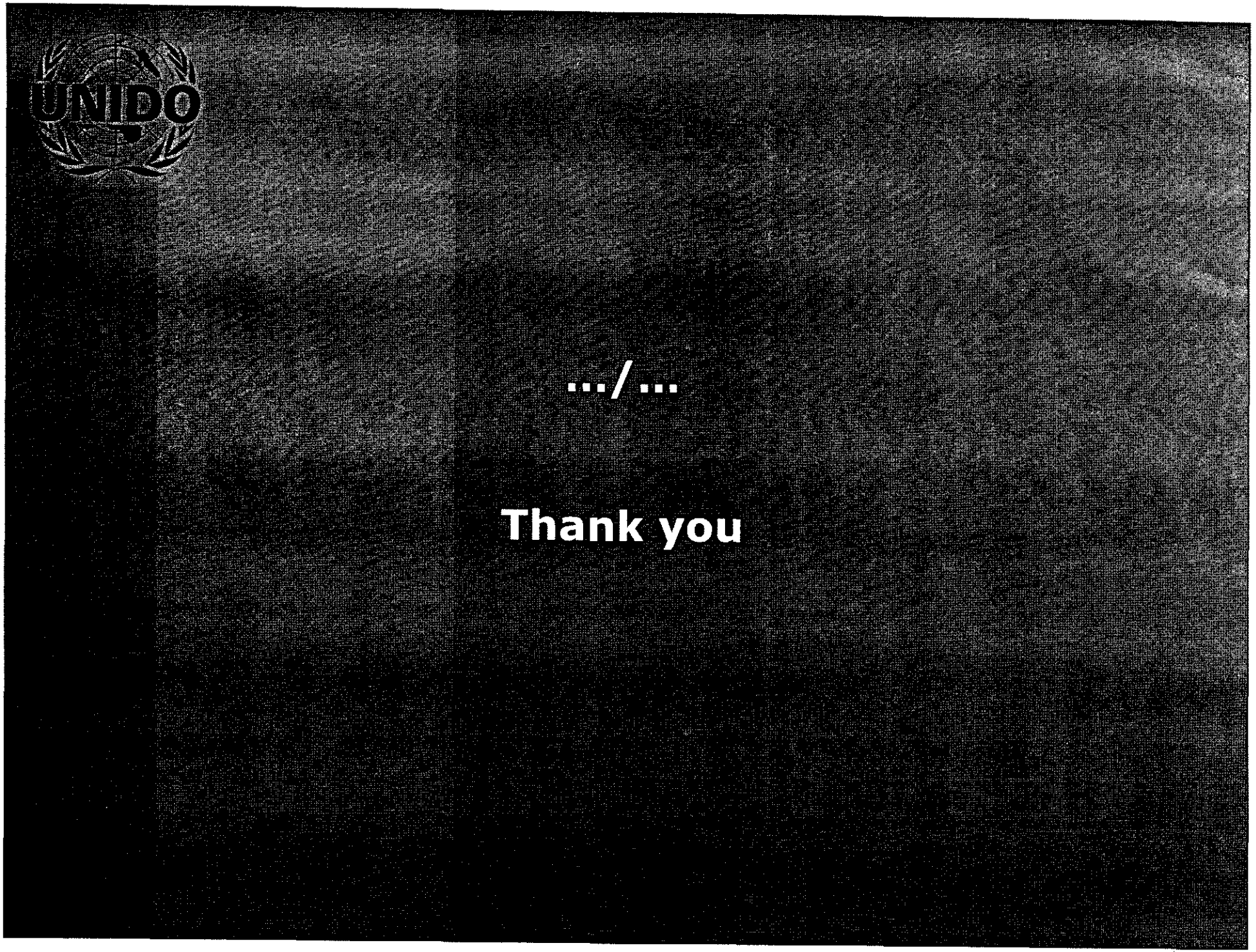






Suspended tray system

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Thank you