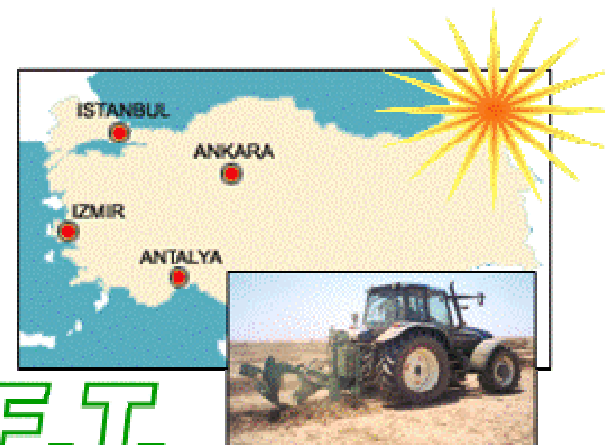


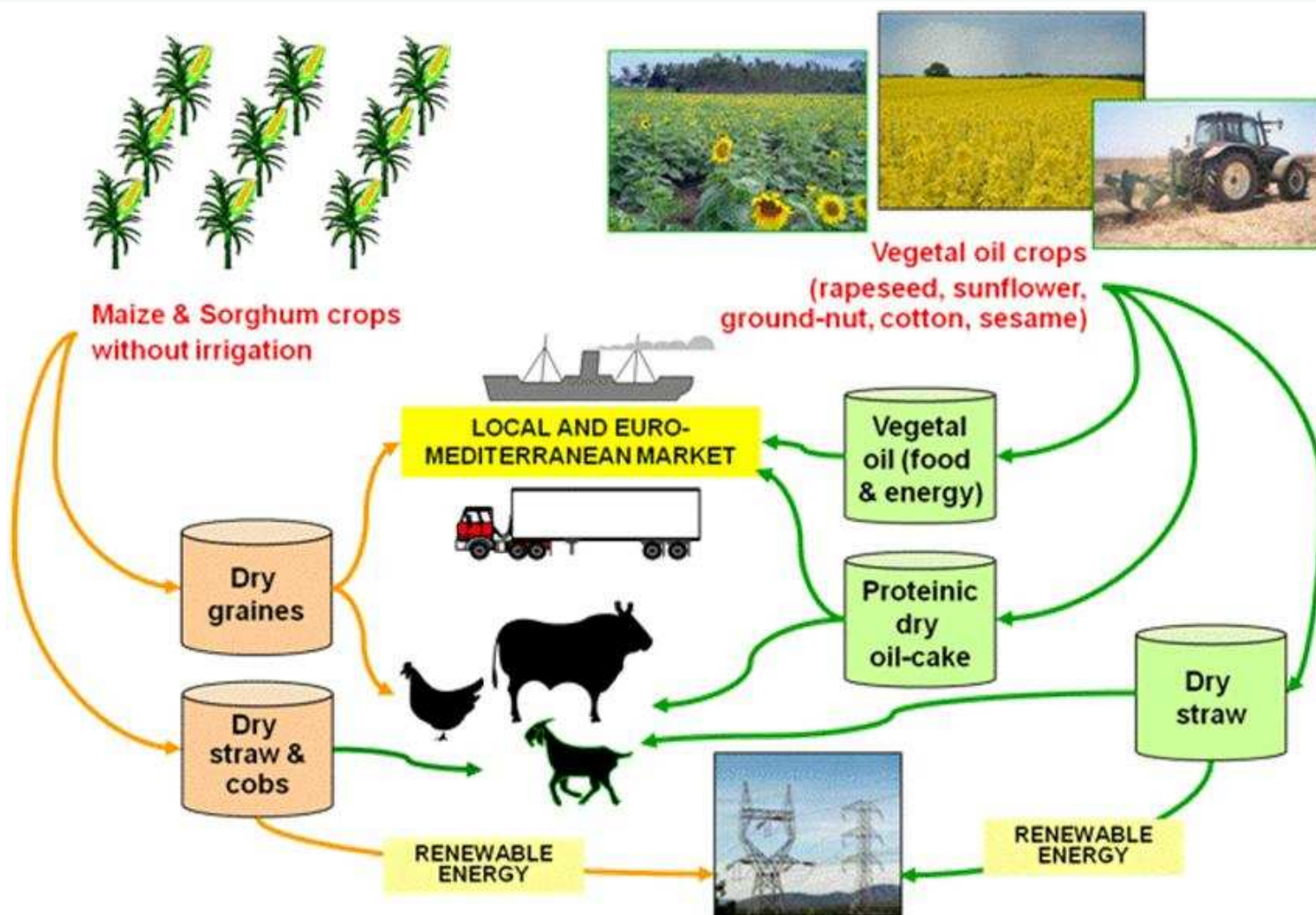
Integrated technologies for the excellence in sustainable agriculture in turkey for the multi-purpose production: food, feed and biomasses (for energetic uses)

THE AGRO-INDUSTRIAL
PROPOSITION WITH
MULTI-PURPOSE
TARGET:
FOOD, FEED &
ENERGETIC DESTINATION



A.E.T.

>> Integrated Agro-industrial System for food-feed-noFood Energetic Chain(1)



>> Integrated Agro-industrial System for food-feed-noFood Energetic Chain(2)

THE SUBJECTS :

- LOCAL COMMUNITY (e.g. TURKISH VILLAGE organized as COOPERATIVE and/or CONSORTIUM)
- FOREIGN INVESTOR **FINANCIAL PARTNER**
- TECHNICAL CONSULTANTS (FOREIGN) FOR KNOW-HOW AND TRAINING **Istituto di Ricerca di Dr. Arioli & C. S.a.s. & IDATA GROUP**
- LOCAL TECHNICIANS
- LOCAL FINANCIAL SUPPORT

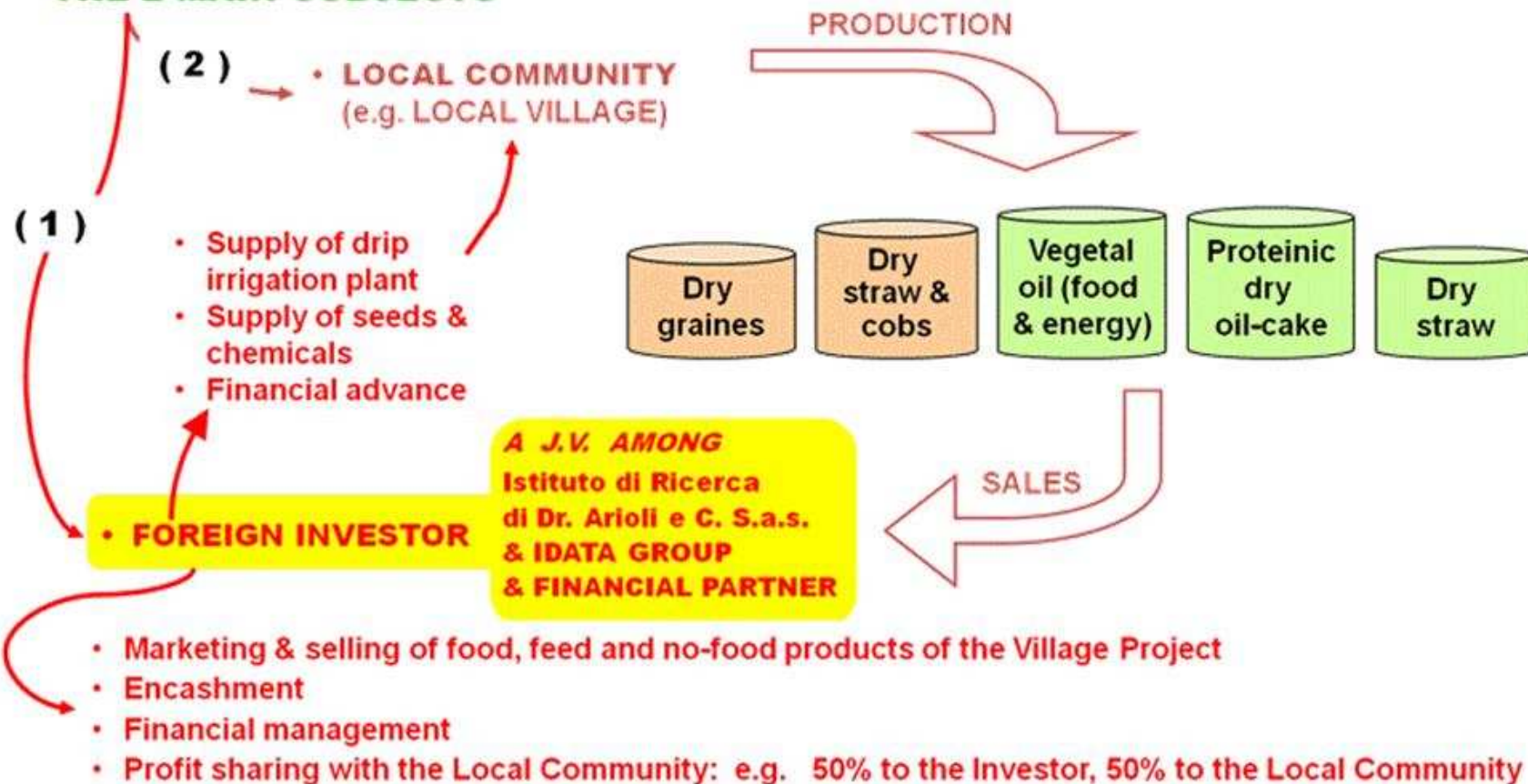
THEIR ROLE :

- Organization of each single local plot . Supply of manpower for crop and harvest. Crop guardianship.
- Financial Partner. Local and international marketing of production.
- Know-how transfer. Training. Technical assistance for crops and agro-industrial processing. Quality assessment of production.
- Participation to the first level of multi-level training. Crop management.
- Local bank and/or international public financial support

>> Integrated Agro-industrial System for food-feed-noFood Energetic Chain(3)

PROJECT RELATIONSHIPS

THE 2 MAIN SUBJECTS



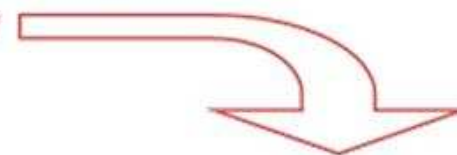
>> Integrated Agro-industrial System for food-feed-noFood Energetic Chain(4)

THE MARKETING MANAGEMENT OF THE “TURKEY PROJECT”

- **FOREIGN INVESTOR (marketing management)**
FINANCIAL PARTNER



SALES STRATEGY



- **PRIORITY = to local market**
 - Local village & neighbouring communities (graines, straw & cobs, oil, oil cakes)
 - Local Province / Region (graines, straw & cobs, oil, oil cakes)
- **COMPLEMENTARY MARKET = International intercontinental market**
 - European market = dry products and commodities: dry grains and energy products (oils & cakes)

>> Integrated Agro-industrial System for food-feed-noFood Energetic Chain(5)

PROGRAMME OF INVESTMENTS AND PRODUCTION (1ST STEP) = 12,500 Ha

• **J.V. IN TURKEY
(INVESTORS +
TURKISH
PARTNER)**

**FINANCIAL
PARTNER**

**+
TURKISH
PARTNER**

Dry
grains

Dry
straw &
cobs

Vegetal
oil (food
& energy)

Proteinic
dry
oil-cake

Dry
straw

- **MAIZE** = 2,500 Ha
 - DRY GRAINS = 20,000 Tons/year
 - STRAW & COBS = 25,000 Tons/year
- **SORGHUM** = 2,500 Ha
 - DRY GRAINS = 15,000 Tons/year
 - STRAW & COBS = 35,000 Tons/year

- **RAPSEED** = 2,500 Ha
 - DRY OLEAGINOUS GRAINS = 7,500 Tons/year
 - OIL = 2,250 tons/year
 - DRY OLEAGINOUS CAKE = 5,250 Tons/year
 - DRY STRAW = 18,750 Tons/year
- **SUNFLOWER** = 2,500 Ha
 - DRY OLEAGINOUS GRAINS = 7,500 Tons/year
 - OIL = 2,500 tons/year
 - DRY OLEAGINOUS CAKE = 5,000 Tons/year
 - DRY STRAW = 11,250 Tons/year
- **GROUND-NUT** = 2,500 Ha
 - DRY OLEAGINOUS GRAINS with hulls = 6,750 Tons/year
 - OIL = 2,2160 tons/year
 - DRY OLEAGINOUS CAKE = 5,590 Tons/year
 - DRY STRAW = 9,000 Tons/year

>> Integrated Agro-industrial System for food-feed-noFood Energetic Chain(6)

MARKET DYNAMICS AND FLOW (1ST STEP) = 12,500 Ha

Dry grains

Dry straw & cobs

Vegetal oil (food & energy)

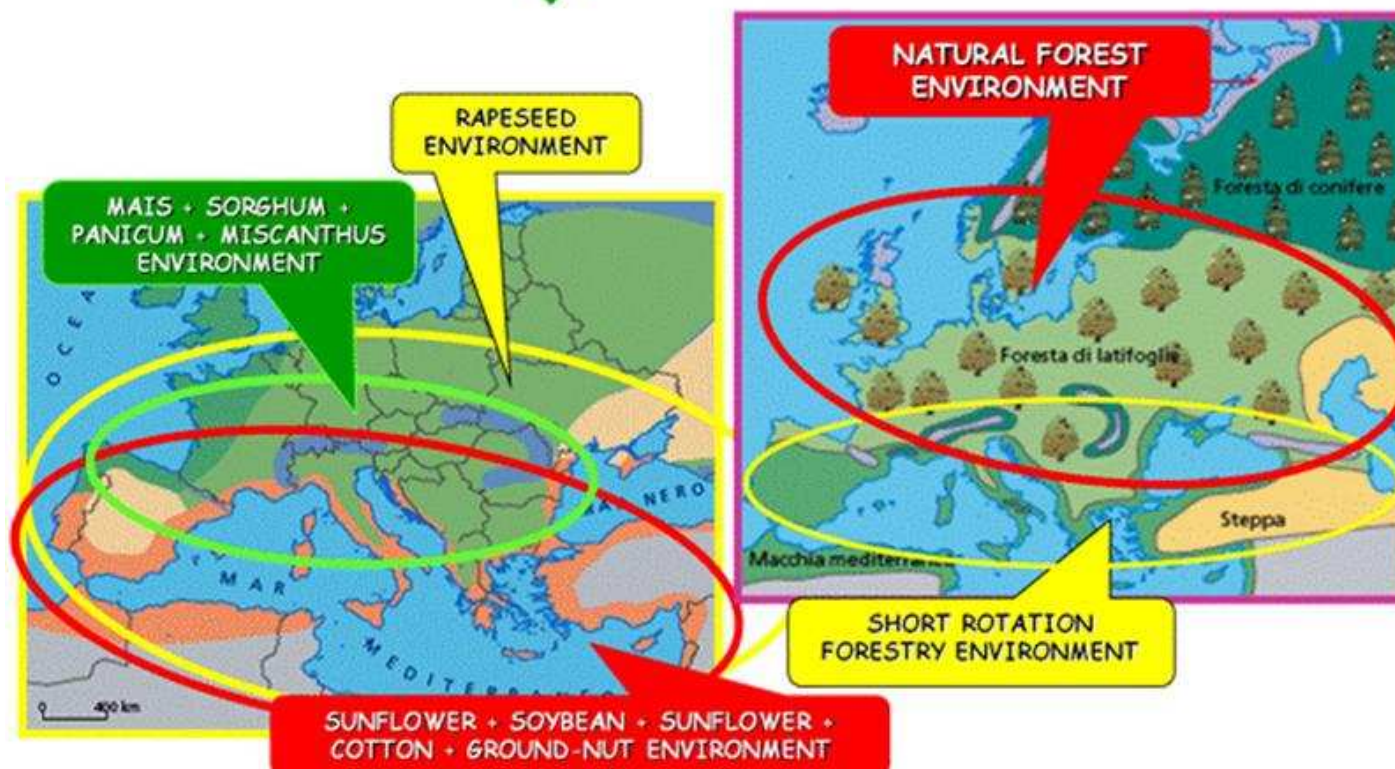
Proteinic dry oil-cake

Dry straw

- **MAIZE** = 2,500 Ha
 - DRY GRAINS = 20,000 Tons/year => FEED
 - STRAW & COBS = 25,000 Tons/year => PYRO-GASIFICATION (2 MW = 16,000,000 kWh)
- **SORGHUM** = 2,500 Ha
 - DRY GRAINS = 15,000 Tons/year => FEED
 - STRAW & COBS = 35,000 Tons/year => PYRO-GASIFICATION (2.5 MW = 20,000,000 kWh)
- **RAPSEED** = 2,500 Ha
 - DRY OLEAGINOUS GRAINS = 7,500 Tons/year => OIL SQUEEZERS
 - OIL = 2,250 tons/year => FOOD & ENERGY
 - DRY OLEAGINOUS CAKE = 5,250 Tons/year => FEED & ENERGY
 - DRY STRAW = 18,750 Tons/year => FEED & ENERGY (PYRO-GASIFICATION)
- **SUNFLOWER** = 2,500 Ha
 - DRY OLEAGINOUS GRAINS = 7,500 Tons/year => OIL SQUEEZERS
 - OIL = 2,500 tons/year => FOOD & ENERGY
 - DRY OLEAGINOUS CAKE = 5,000 Tons/year => FEED & ENERGY
 - DRY STRAW = 11,250 Tons/year => FEED & ENERGY (PYRO-GASIFICATION)
- **GROUND-NUT** = 2,500 Ha
 - DRY OLEAGINOUS GRAINS with hulls = 6,750 Tons/year => OIL SQUEEZERS
 - OIL = 2,2160 tons/year => FOOD & ENERGY
 - DRY OLEAGINOUS CAKE = 5,590 Tons/year => FEED & ENERGY
 - DRY STRAW = 9,000 Tons/year => FEED & ENERGY (PYRO-GASIFICATION)

>> A.E.T. - Agronomic Guidelines

MACRO-ECOSYSTEMS FOR BIOMASS PRODUCTION OF THE MEDITERRANEAN BASIN



>> What, Where, When...

the amount and distribution of genetic diversity maintained by farmers over time and space

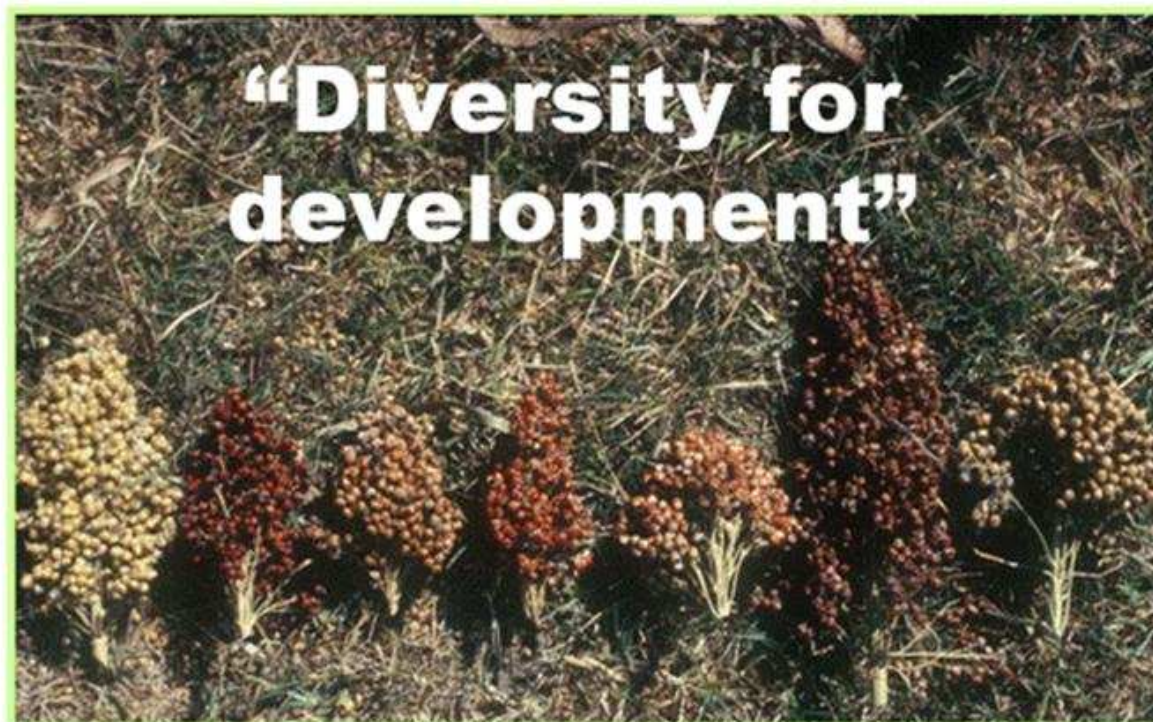
- What is the farmer's unit of diversity management (FUD) – is it the cultivar name?
- What characters does a farmer use to distinguish this unit?
- What is the level of consistency between farmers' units of diversity management (FUD) and genetic distinctiveness?



Unit = farmer's unit of diversity management

- Traits for distinguishing the unit :
 - Origin and source of material
 - Morphology (young plant, flowering stage, maturity of fruit on the plant, maturity stage after harvesting)
 - Environmental/ecological adaptation (type of soil, resistance to pests, earliness, yield)
 - Use (fast cooking, taste, straw)

>> Diversity...



7 DIFFERENT VARIETIES OF SORGHUM:

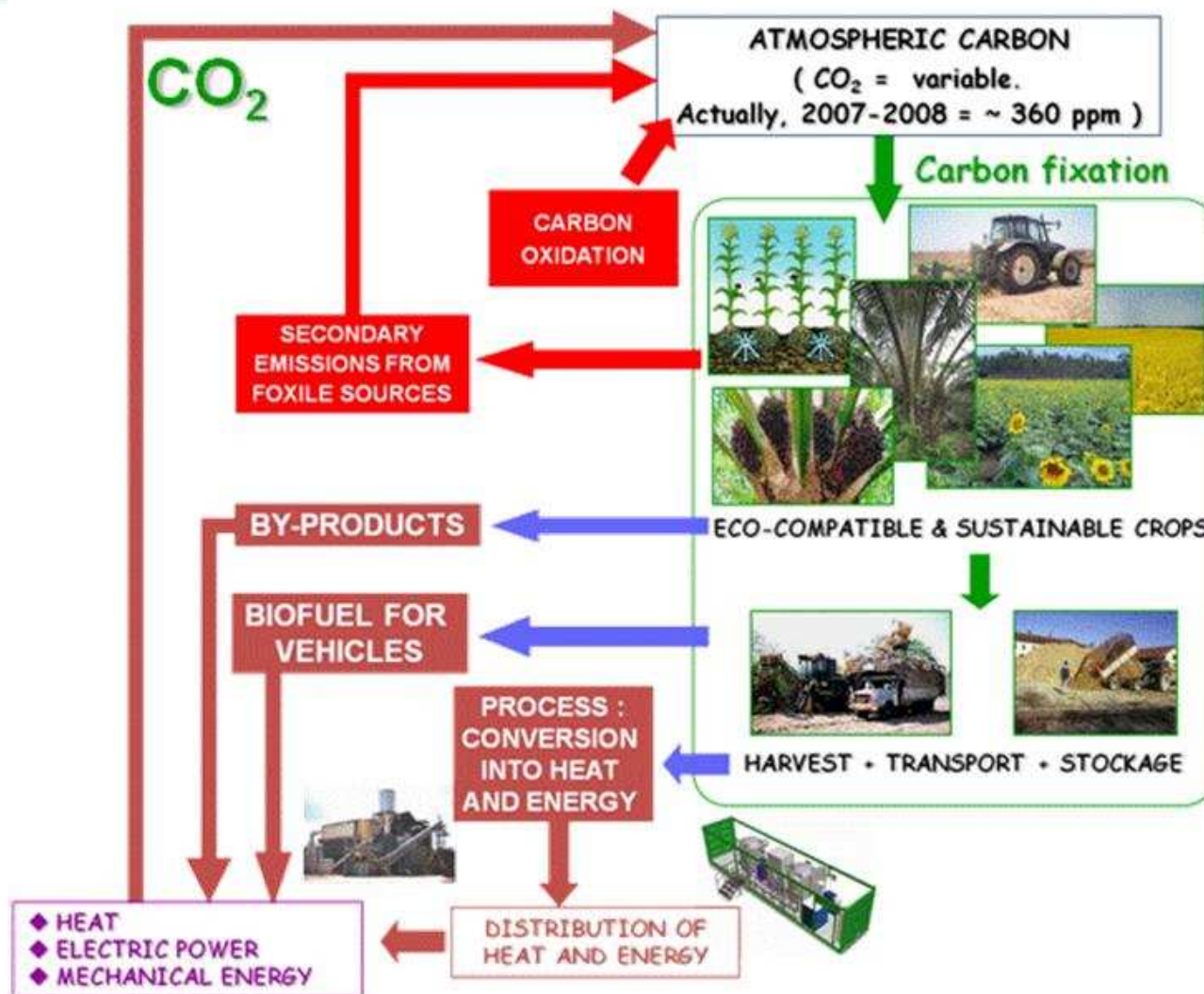
***IT MEANS MORE RESISTANCE & TOLERANCE TO
ENVIRONMENTAL STRESS, PARASITES, NATURAL
SELECTION....***

>> Diversity...

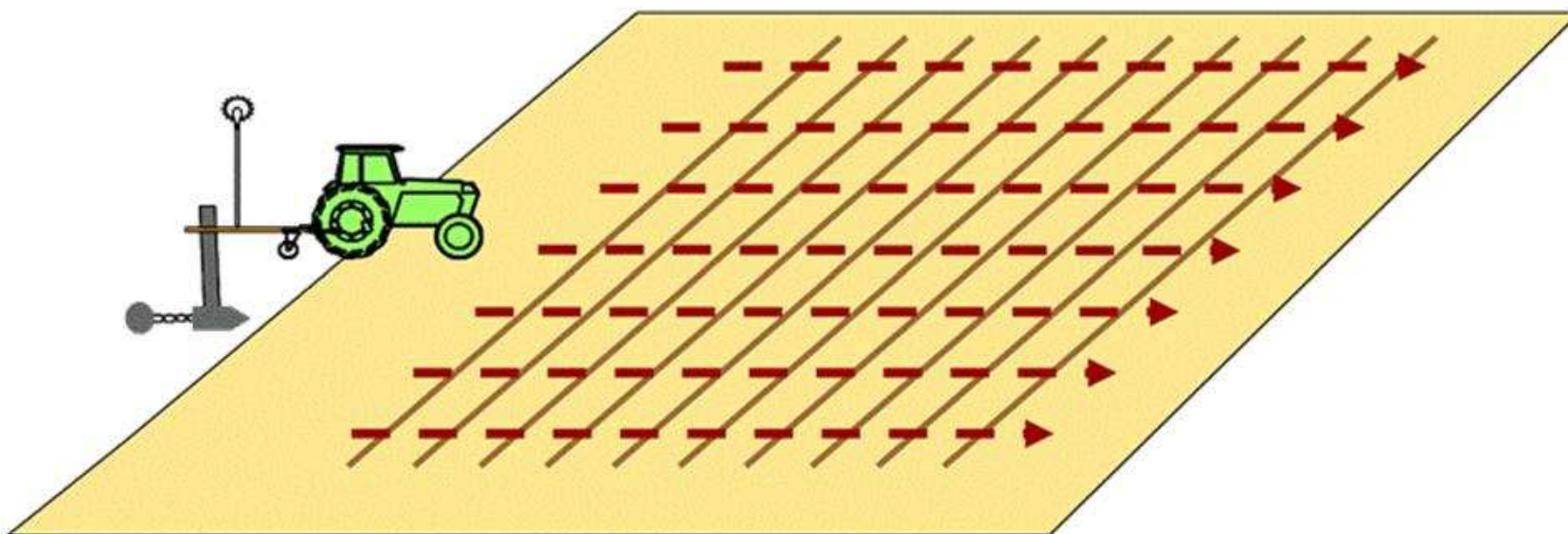
Using the vegetal diversity for development: what is involved?

- Building national capacity, institutional linkages and representative partnerships.
- Supporting either vegetal genetic diversity assessment or adaptive management in forest eco-systems.
- Mainstreaming vegetal genetic bio-diversity for forest and re-forest strategies and development.
- Changing *water & drainage* models and policies.

>> CO₂ System



>> Technical Planning for Soil Preparation and Conditioning (Drainage and Refining)



- **CROSSED PRIMARY WORK OF THE SOIL WITH DRAINING EFFECT, USING EXCLUSIVE TECHNOLOGIES AND MACHINERY**
- **PREPARATION OF THE “FIELD-NET OF SOIL WORK”, DEDICATED TO 3 KINDS OF VEGETAL COVER AND CROPS:**
 - **FIRST KIND: TREES (ARBOREOUS)**
 - **SECOND KIND: SHRUBS**
 - **THIRD KIND: HERBACEOUS CROPS**

>> The Water-Saving “Nardi-Vallerani System” for soil preparation of A.E.T. food and no-food districts

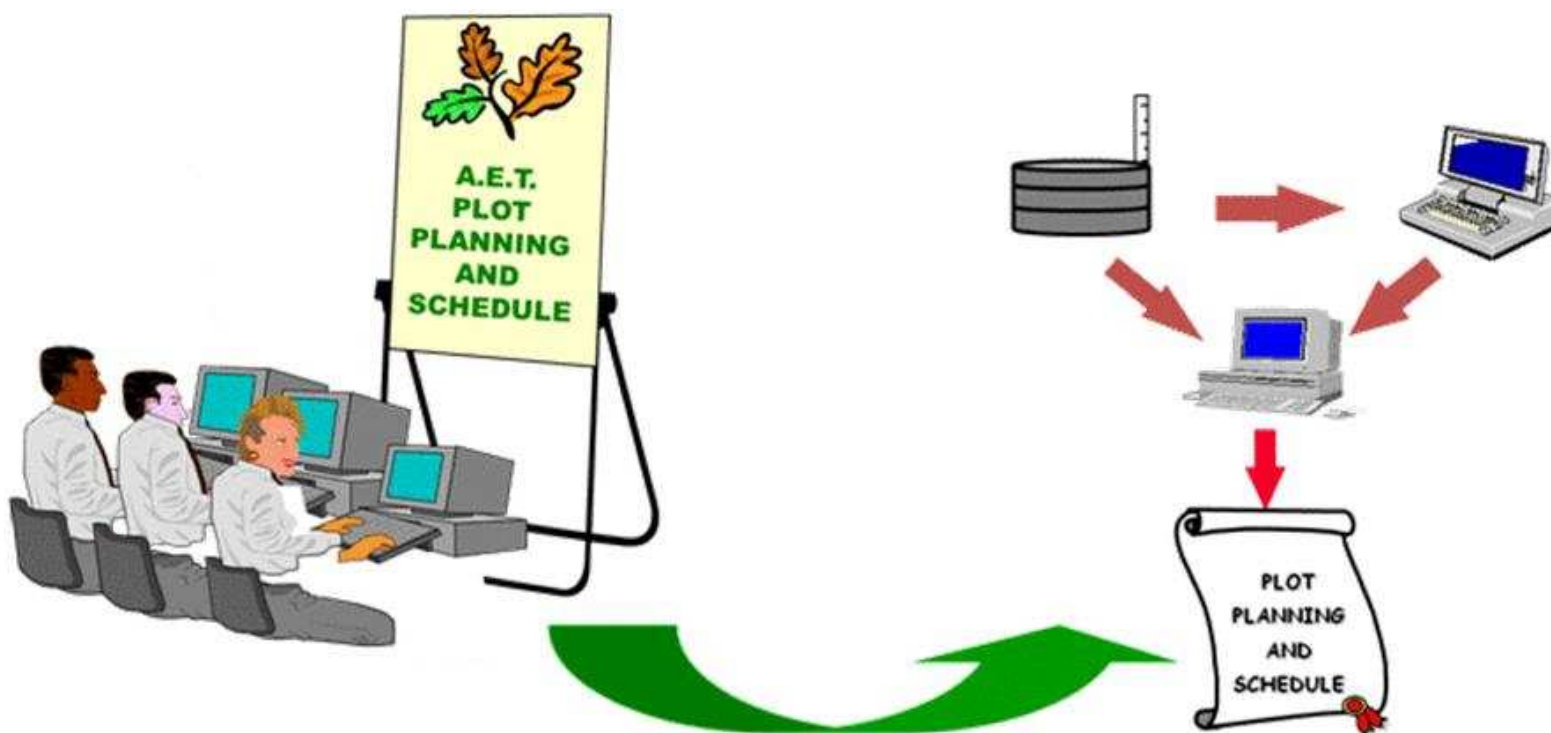


Application to the arid and semi-arid agro-environmental reality

“Vallerani-Nardi ploughing system: one of the Italian ways for the turn-key solution of soil preparation for arid forestry and agriculture, calibrated for low or lack of water resource”.



>> Technical Planning and Management for not-Irrigated plots



- OPTIMIZATION OF LOCAL ENVIRONMENTAL RESOURCES
- OPTIMIZATION OF NON-IRRIGATED CROPS

>> A.E.T. Dedicated Training Programmes for Local Technicians

On-the-job Training
(practice)



.... coupled to theory about SUSTAINABLE
DEVELOPMENT FOR LOCAL AGRO-ECO-
SYSTEMS



Teaching about
specific
Hw and Sw

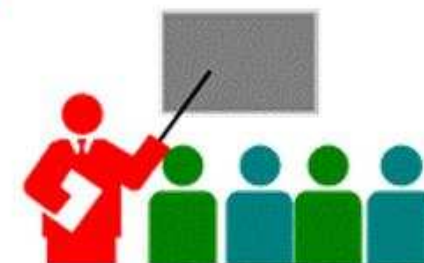


Planning
technologies

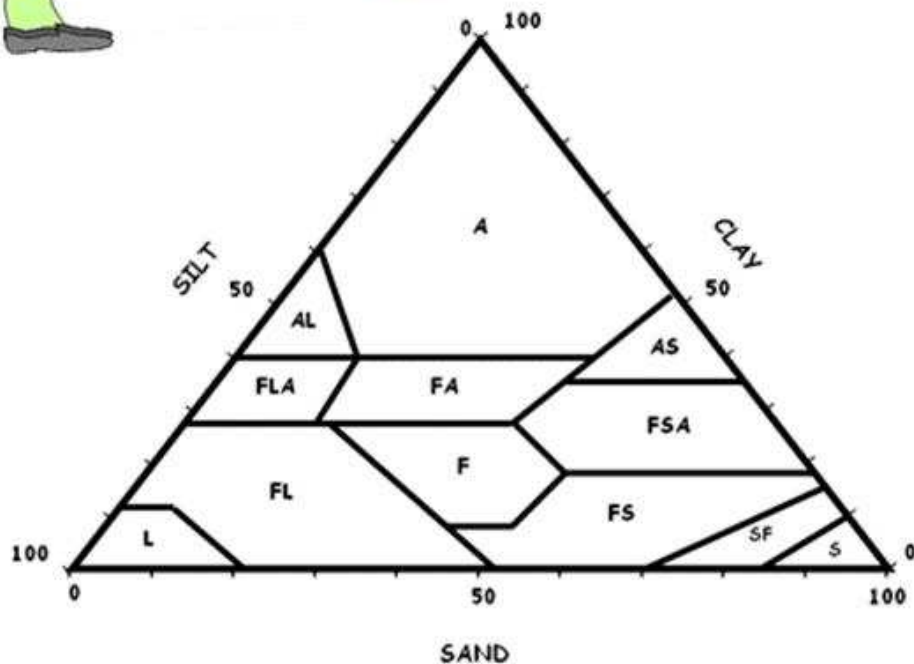


Fertilizers, fertirrigation, crop
nutrition, irrigation optimization,
pesticides management, fertility
increase and maintenance

Technical lessons, briefings,
brainstorming, know-how
transfer



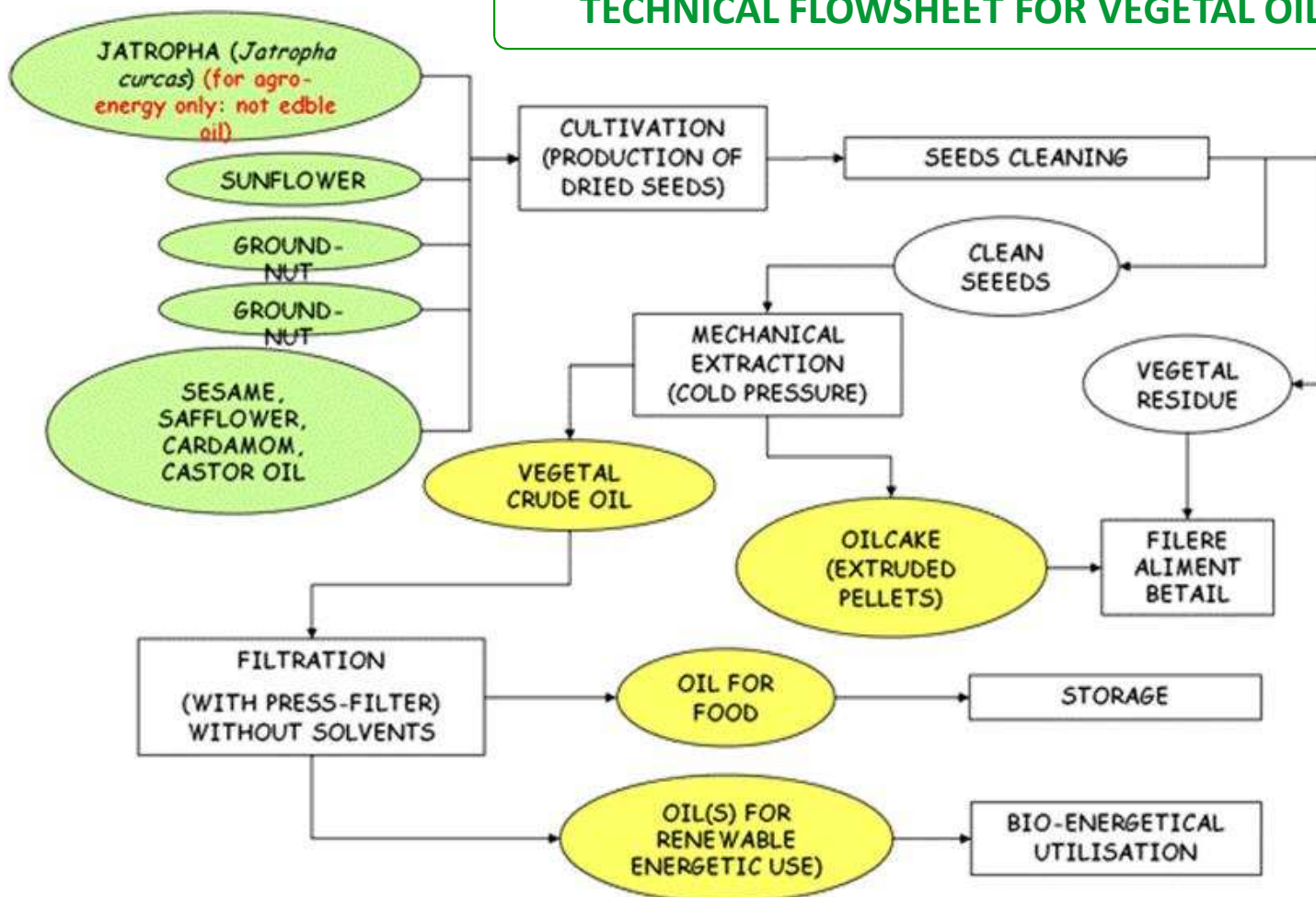
>> SOIL & WATER MANAGEMENT



EXCLUSIVE TECHNOLOGIES FOR THE SYNERGISTIC APPLICATION OF CHEMICAL AND PHYSICAL ANALYSIS APPLIED TO SOIL AND WATER MANAGEMENT

>> FLOWSHEETS OF AGRO-ENERGETIC AGRO-INDUSTRY CHAINS

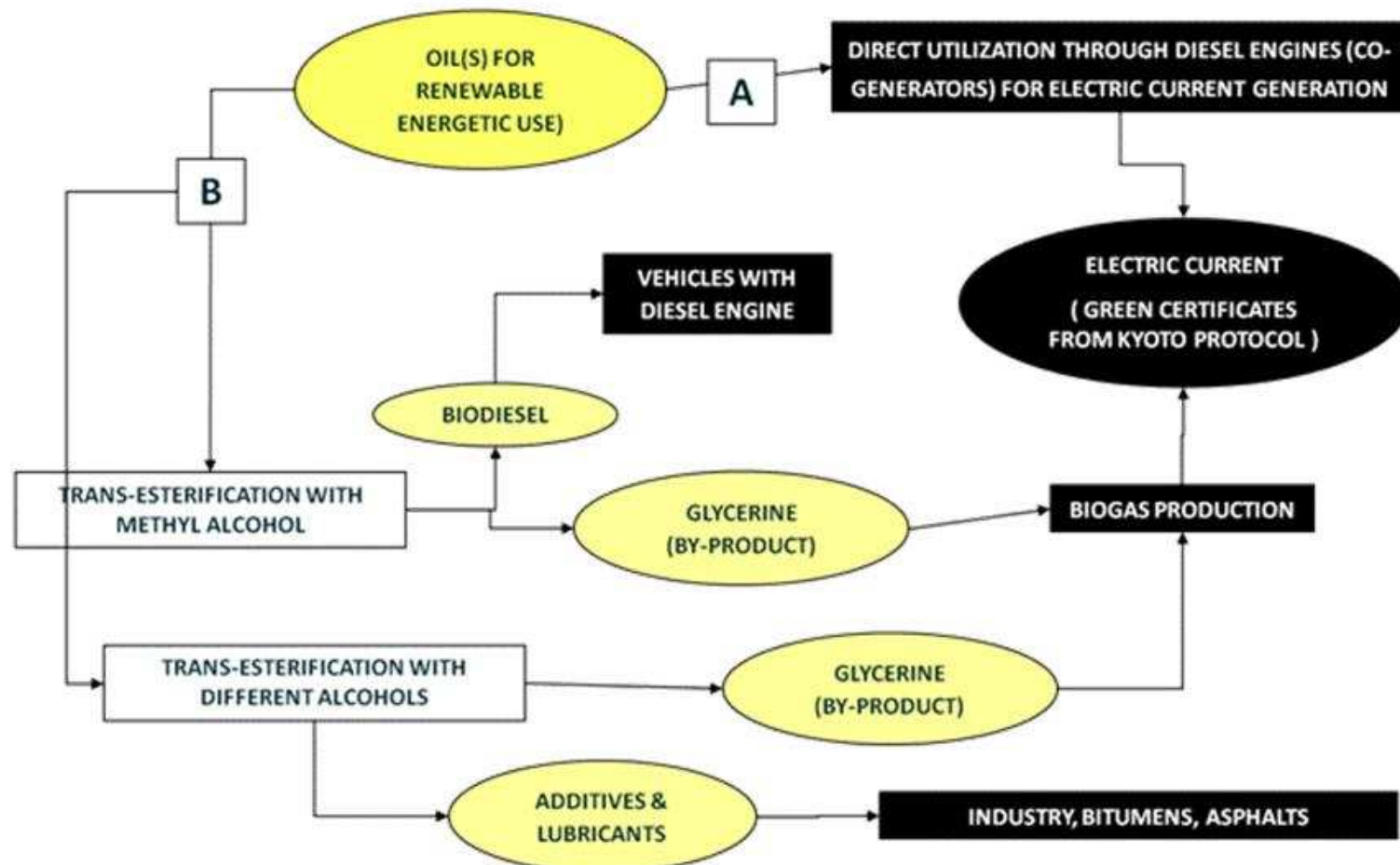
TECHNICAL FLOWSHEET FOR VEGETAL OILS (1/2)



>> FLOWSHEETS OF AGRO-ENERGETIC AGRO-INDUSTRY CHAINS

BIO-ENERGETICAL UTILIZATION

TECHNICAL FLOWSHEET FOR VEGETAL OILS (2/2)



>> FLOWSHEETS OF AGRO-ENERGETIC AGRO-INDUSTRY CHAINS

**SCHEME OF
COLD
MECHNAICAL
EXTRACTION
FLOW FOR
VEGETAL OILS ...**

