
❖ THE ISCOWP NEWS ❖

Volume 11 Issue 2

The International Society for Cow Protection

2001

Draconian mass murder methods used to rid cows of the Foot and Mouth disease were described in the last issue. This issue presents some homeopathic cures for this and other cow diseases. An aryuvedic cure has also been found to have astounding results curing Foot and Mouth disease in the Meerut area of India.

Cow Protection means the engagement of the species in service as well as lifetime provision for their needs and comfort. The cow gives milk and the bull tills the field to produce food. The bull can also be an energy substitute for the tractor for numerable activities on a small farm scale. Hauling is one such activity as exhibited by the front-page photo of ox power on Mrs. Malik's farm in Raigad, India.

Even in this modern age there are many situations where the bull/ox can exceed the tractor in practical utility. Agroforestry is one such agricultural program where the bull becomes an asset. The value of the bull then becomes fully realized.

Cures for Cow Diseases



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Ox Power Provides Practical and Spiritual Benefits

International Society for Cow Protection, INC. (ISCOWP)

ISCOWP Profile

ISCOWP was incorporated in the state of Pennsylvania, U.S.A., March 1990, as a non-profit educational organization. William and Irene Dove (Balabhadra das and Chayadevi dasi) are its managing directors. They are disciples of His Divine Grace A.C. Bhaktivedanta Swami Prabhupada, the Founder Acharya of the International Society for Krsna Consciousness (ISKCON). Through their spiritual master's teachings, they have imbibed the practices and benefits, both spiritual and material, of lifetime cow protection.

ISCOWP's primary concern is to present alternatives to agricultural practices that support and depend upon the meat industry and industrialized, petroleum powered machinery. To this end, ISCOWP trains oxen (male cows or steers) to replace farm machinery and thereby show an alternative to their slaughter. The tenets of cow protection and ox-power are universal and nonsectarian, available to all regardless of race, creed, or nationality.

ISCOWP Goals

- 1) To systematically educate all people in the practice of cow protection in order to check the imbalance of values in life and to achieve real unity and peace in the world.
- 2) To bring the members of the Society together with each other, thus developing the idea within the members, and humanity at large, the great necessity and benefit of recognizing the cow as the mother who gives milk to the human society and the bull as the father whose labor in the field produces food for humanity in the form of grains and vegetables.
- 3) To teach and encourage peaceful dietary practices based on lacto-vegetarianism.
- 4) To establish branches of the International Society for Cow Protection Inc. and encourage any organization that complies with this charter.
- 5) To bring the members closer together for the purpose of teaching and establishing a simple agrarian lifestyle based on a cow-

human-land relationship and utilizing the principle of cruelty free, lifetime protection toward all God's creatures, especially the cows and bulls.

6) To establish and maintain a traveling, educational program representing the relevance of the cows and bulls in society today.

7) With a view towards achieving the aforementioned purposes, to publish and distribute periodicals, books and other writings.

8) To receive, administer and distribute funds and all other things necessary and proper in furtherance of the above stated purposes.

ISCOWP Activities

Ox-power, An Alternative Energy

At ISCOWP's headquarters, Vrajapura Farm, fields for all crops are prepared by ox-power. In the winter, logging by oxen provides wood for heating. Due to the oxen's ability to haul loads, petroleum powered machinery is being replaced for farm chores and plans are developing for ox powered machinery to provide electrical power.

Ox-power Seminars

Seminars are given in living classroom settings involving hands-on instruction at locations such as Russia, North Carolina, Pennsylvania, and West Virginia, U.S.A. If you wish to partake in such a seminar or wish to have one in your area, contact ISCOWP for seminar schedules.

Training Teamsters and Oxen

Teamsters and oxen are trained worldwide. Prospective students are encouraged to contact ISCOWP for either individual instruction or seminar schedules. At Vrajapura Farm there are 6 trained ox teams available for the training of students.

Educational Videos, Newsletters, and E-Mail Network

"Training Oxen by Voice Commands" and "ISCOWP Travels to Belarus" are videos filmed and produced by ISCOWP. 10 years in publication, the

ISCOWP News informs its readers of cow protection activities worldwide. 7 years in existence, the ISKCON COM cow conference offers a forum for practical and philosophical discussions to over 80 members from 18 countries. <http://iscowp.com> offers a wide scope of information about cow protection.

ISCOWP Outreach

5 years of travel with oxen throughout the United States' major cities and towns has resulted in presenting thousands of people with the message of cow protection and ox-power.

Developing Vrajapura Farm

ISCOWP's headquarters, consisting of 165 acres, provides a setting for seminars, hands-on instruction, ISCOWP's office, and an example of ox-power and life centered on the land and cows. At Vrajapura Farm, twenty-seven cows and oxen are provided lifetime protection. Recently purchased, it is presently in the beginning stages of development

ISCOWP Contact

USA Federal Tax Number

All donations to ISCOWP within the USA are tax deductible. The tax number is 23-2604082.

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ISCOWP 3x yr Newsletter

Within the USA: Send \$21 check to snail mail address
Outside USA: Send \$25 bank draft or money order to snail mail address

ISCOWP T-shirts, videos, information

Please inquire at above addresses.

ISCOWP News Details in non-editorial articles do not necessarily represent the viewpoint of the editors.

Letters

Oxen Plowing

From: Pancaratna.ACBSP@pamho.net
 To: "Cow (Protection and related issues)" Cow@pamho.net
 Subject: Oxen plowing
 Date: Wednesday, June 20, 2001 5:00 AM

Here in Mayapur, India area, a team of bullocks can plow only a little more than .36 acre per day at a cost of Rs. 450 per acre compared to a tractor which can do about 13 acres a day at a cost of Rs. 180 per acre.

The speed of the tractor is one of the major disincentives for using oxen on the ISKCON land. They say they just do not have the manpower and time to use bullocks and get the large amount of land plowed in time.

Can anyone here give me some similar numbers for western oxen?
 Pancaratna das

From: talavan@fnbop.com
 To: Cow@pamho.net
 Subject: Re: Oxen plowing
 Date: Wednesday, June 20, 2001 6:59 AM

What breed are you using to plow with? There maybe a breed that is more suited to that type of work, that can work at a faster pace or that may be more economical to maintain.
 ys, Rohita dasa

From: "Syamasundara (das) (Bhaktivedanta Manor - UK)" Syamasundara@pamho.net
 To: "Cow (Protection and related issues)" Cow@pamho.net
 Subject: Oxen plowing
 Date: Wednesday, June 20, 2001 8:19 AM

In England and probably the rest of Europe and America a team of oxen can plough 1 acre in seven hours not

including rest periods and turning. Usually they calculate one acre per day.

The calculation is as follows: furrow cut .23m width, speed 2500 meters per hour, acre 4000 meters square. 4000 divided by (2500 x .23) = 4000 divided by 575 = 7 hours
 ys syam

From: Syamasundara@pamho.net
 To: Cow@pamho.net
 Subject: Oxen plowing
 Date: Wednesday, June 20, 2001 12:30 PM

Regarding the costs of tractor plowing in Mayapur, India land. Does that figure take into account purchase price, maintenance, loss of value etc. Is the cost of tractors subsidized in some way?

If the figures are a true comparison then what is the plan to give the oxen back their value.

Is it possible for the Mayapur management to buy into ox power by paying more for their food if produced from oxen?

I remember in Mayapur this year the goshalla manager informed me that they were breeding 60 cows per year and as you know this means over 20 years there will probably be about 600 male oxen of which about 400 will be workable.

How does Mayapur plan to utilize all these oxen if the land is being farmed by tractors?.

How much difference in the price of rice would there be if the food is produced by tractors or produced by working oxen. Has such an analysis been done?

In the UK I have done some simple comparisons and I figure that conventional wheat grain which ordinarily sells at 85 pounds sterling per ton would have to be valued at 300

pounds sterling per ton to give an incentive to grow it with oxen. At the moment organic wheat grain sells for about 200 pounds per ton.
 ys syam

From: Pancaratna.ACBSP@pamho.net
 To: Cow@pamho.net
 Subject: Oxen plowing
 Date: Sunday, June 24, 2001 3:10 PM

No, the tractors are not subsidized, but the diesel fuel is cheaper than petrol. It is not really subsidized, but it is not so heavily taxed.

These are prices from local tractor owners who rent their services, so I assume they have factored in all the purchase price, etc.

> Is it possible for the Mayapur management to buy into ox power by paying more for their food if produced from oxen.>

Everything is possible in this world, but there is no indication they are eager to do this. But there is also the problem of getting all the ISKCON land plowed quickly. At sowing time, the local teamsters are all working, so unless ISKCON develops its own large crew of teamsters and also keeps sufficient oxen, it is difficult to plow the ISKCON land by oxen.

> How much difference in the price of rice would there be if the food is produced by tractors or produced by working oxen. Has such an analysis been done?>

No, but I don't think the price differential would be that much. My own crops of rice are costed like this:

Labor for cleaning the land	500
Plowing (by oxen)	330
Water tax (govt.)	150
Labor for transplant, weeding, etc.	1250
Total	2330

Yield about 420 kg paddy or about 250 kg rice = cost per kg of about Rs. 9.25 per kg.

My rice is an indigenous variety which is not usually grown as it is not as high yielding, although it requires low inputs (I use no fertilizer or pesticides).

So, plowing by tractor would save me only about 10-15%.

This winter I will be growing wheat and I'll see how that goes too.

Pancaratna das

From: "Taraka (das) ACBSP (Gita Nagari, PA - USA)" Taraka.ACBSP@pamho.net

To: Cow@pamho.net

Subject: Oxen plowing

Date: Friday, June 22, 2001 2:59 PM

A few weeks back Bhakta Derek and I were speaking to Sarva Sidhi Ratha dasa, a teamster from many years back. He indicated that he used to easily plow one acre per day with a walking plow and a single team of oxen. He didn't mention which breed. For only one team of oxen to do the work, there would have to be lots of breaks.

Seems to me it's important to understand some things about plowing. There are many different types of plowing and many different implements to plow with. Depending upon the crop to be planted, plowing of a certain type is necessary, or perhaps no plowing is necessary. In some cases simply harrowing is sufficient. Implements for harrowing or shallow plowing typically cover a wider track for a given ox-power than say a single bottom plow that cuts deeply.

There are various reasons for plowing such as: turning under organic material to enrich the soil, aeration of the soil, loosening compacted soil, elimination of weeds, etc. If you were planting a deep rooted crop in compacted soil, you would need to plow deeply. If the soil was regularly worked and rela-

tively loose, it might not need plowing and it might be sufficient to disc or harrow for weed control or to establish planting furrows.

Deep plowing is hard work for the oxen. A multi-bottom plow might require several teams of oxen to pull, but it would plow a wider swath. A disc or harrow which do not cut deeply, are easily pulled by a single team and also cover a wide swath.

So there are lots of factors to take into account. You need to know about your crop and the soil. Too often I see farmers who routinely plow deeply because they don't know any better. Often it is unnecessary and sometimes counter-productive. If you plow in such a way that organic matter is turned deeply into the soil but our crop is shallow rooted, the plants will never be able to take advantage of the material you turned into the soil. It will never get used until you plant a deep rooted crop. Tilling the soil to loosen it and to control weeds is often necessary before planting, but tilling does not necessarily mean plowing.

What are the soil conditions in Mayapura? Does it really require plowing? What are the crops? What is the depth of their roots? I think in most cases simply harrowing would be sufficient and this is easy work which does not take nearly as long as plowing in most cases.

Taraka dasa

From: "New Talavan" talavan@fnbop.com

To: Cow@pamho.net

Subject: Re: Oxen plowing

Date: Saturday, June 23, 2001 3:50 PM

In New Talavan because of the sandy nature of our soil we normally disk, usually two or three times, when we do plow (usually only on land that has not been worked in a few seasons) a moldboard plow is used

(three blades).

Just prior to planting we harrow and cultipak (after seeding). Large acreages are done when establishing perennial pastures (50 - 100 acres), otherwise small acreages are done throughout the year according to crop. All this is very much suited to single teams or a solo animal.

Unfortunately, we have many animals that could be trained and about eight persons with more than a years worth of experience each, a handful of people have worked animals for more than three years, but there are no teams working at present. We do have a Gyr/InduBrazil ox who is used to pull a manure sled occasionally. Everyone needs to support their families and have no time for oxen. We do have a vegetable garden (3 1/2 acres) but it is all done by tractor.

Rohita das

Ox-Plowing in Agroforests

From: "mark chatburn" markjon11@yahoo.com

To: Cow@pamho.net

Subject: Ox-plowing in agro forests

Date: Friday, June 22, 2001 7:27 AM

My points:

Quantity of land ploughed per day is not necessarily the important quality in the decision process here. This depends a lot on what type of land use will be in operation and the plowing needs at certain times and in certain conditions.

An ideal scenario for oxen is within an agroforest plantation, taking advantage of cropping between trees for the first 5 years before the trees shade out the crops too much. Diagram below:

trees	o	o	o	crops
trees	o	o	o	crops

trees 0 0 0 crops

For 5 years oxen can plough between the trees and crops can be intensively managed to produce high yielding crops, it could be also grains. Then, after 5-7 years, the end result is an orchard or home garden (permacultural) with silvo-pastoral undergrowth, meaning the cows can graze underneath the trees.

Tractors would not be suited to such an arrangement, except the type used in Japan on their paddy fields which are very small and mobile.

So, the above situation places the quality of the work, in terms of design, above the quantity of land ploughed. Land ploughed, cost of plowing system - oxen or tractors, and labor needs are just 3 variables that fit into a more complex system of inputs and processes that yield varied outputs. If the system is very simple like extensive grain production in the American Mid-West or on the Argentine Pampas, then tractors can easily beat oxen. If the system is more diverse and complex then the tractor can lose competitive advantage.

If one takes high-value products like medicinal herbs, the cost of land plowing is minimal to the product. With lower-value products like grains, plowing is a greater cost per product produced.

To make comparisons it is necessary to see the needs of two competing systems - one simple and one complex.

To take the agro forest/home garden example, as that is the cornucopia environment envisioned, then oxen have serious advantages to tractors. What I would need, and have looked at, is a map of the two systems with land planning for the future of how to turn say a 1000 hectare grassland

into a mixed agroforest with cultivation between trees at various stages of development. I think in this situation the direct competitive advantage of tractors would be seriously diminished to the point where substituting tractors with oxen would not effect the cost structure greatly, or it may even be a positive substitution. On top of that, the needs to the system are to use oxen and added advantages both seen and unseen need to be measured. One could be the effect of tourism to the farm for example, enhanced by an active forestation and ox-power.

So to conclude, it is not just simple quantity comparisons between oxen



Many delicious meals have been made from this chard crop now growing in ISCOWP's garden. Donated shredded paper makes good mulch. (weed eliminator).

and tractor that matter, they are in fact quite misleading at times. What is needed is a comparison between two very different systems, which involves measuring (quantifying) highly complex qualities. So, more than a quantitative comparison a qualitative comparison would need to be shown.

I still think it is possible to find an evening out of the relationship between oxen and tractors if the complexities of two very different systems are studied.

Yours, Mark

From: iscowp@earthlink.net
To: markjon11@yahoo.com;

Cow@pamho.net

Subject: Re: agroforestry and ox power

Date: Thursday, June 28, 2001 9:30 AM

I thought I would include this paragraph that Balabhadra dictated for another letter.

"Many years ago in Mayapur when Kanva prabhu was in charge of all the gardens. He was trying to introduce a multipurpose tree to the area and everyone laughed at him. I can't remember the name of the tree, but I can find out for you. It was a very fast growing tree which meant that it would supply firewood.

The leaves were high in protein and could be fed to the cows and the tree was also classified as a legume which is a nitrogen fixing plant. He did plant quite a few and when I was on the roof of the guest house with him one day he was telling me this story. There was a number of these trees around the backside of the guest house and he pointed and said just see the local villagers now they are coming to take seed pods to grow their own because the trees

themselves had proven beneficial. We had a good laugh."

The use of this tree in your plan might work?

Chayadevi

From: markjon11@yahoo.com

To: iscowp@earthlink.net

Subject: Re: agroforestry and ox power

Date: Thursday, June 28, 2001 2:31 PM

The tree you described sounds like a

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ISCOWP Update

GARDEN

This season's garden is now located to the right of the new



This year's Top Crop bush beans have produced 10 bushels of fresh eating, canning, sale, and seed for planting next year's crop.

ISCOWP center. This area was cleared last year of the rose bush weeds. We have planted: sweet potatoes, potatoes, chard, 2 types of kale, zucchini, summer squash, bitter melon, 140 tomato plants, brussels sprouts, 3 types of beans, carrots, beets, hot peppers, green peppers, cucumbers, marigolds, tomatillos, lavender, sage, and eggplant. Everything is growing well and we are already harvesting the tomatoes, zucchini, squash, beans, kale, chard, potatoes, green peppers and hot peppers. Everything tastes even better than the vegetables from our first garden.

We have canned tomato chutney, beans, and relish, and we have dried zucchini, squash and tomatoes. Large drying racks were donated which we are putting up in the attic. In addition we have purchased an Excalibur drying machine, which is very efficient. We are selling the excess to local families. We are not buying any vegetables

from the store and we hope to can and dry enough produce so we won't have to buy any vegetables in the winter. Our monthly donors will soon be receiving their canned food premiums.

At Balabhadra's work place there is much shredded paper thrown out every day. Balabhadra has been taking this "garbage" and using it for mulch that is put around the plants to stop the growth of weeds. Madhava Gosh, our neighbor, has been receiving this paper



Barn roof construction begins as the cows head for the barnyard.

also, and it has proven quite successful for both of us. All the produce that we are able to preserve and the produce that we want to store will be placed in the root cellar located in the ISCOWP house.

BARN and COW PATH Campaign

Construction has begun on the barn roof due to the generosity of some of our members. We will proceed as far as the money will provide and keep you informed of the progress. Most likely next month we will inform all of you. We hope to finish the roof before this winter so the cows have protection against the elements. We have hired two local West Virginia carpenters who are competent and are learning every day more and more about cow protection.

Over the winter and spring the poles settled because of the wet soft conditions of the ground. So the first week of work on the barn has been re-plumbing-bopping the poles that the roof will sit on. Part of this procedure is framing the walls that hold the poles in the right position. Once this is accomplished the top plates are being put into place. The next step will be running the rafters, that will start August 10th. Weather permitting the framing and roof will be done by mid

September.

We have looked at a lot of materials for the actual roof itself and we decided to use a 27 gauge tin roof. It is an industrial gauge that is thicker than was found in

the local hardware stores. One of our neighbors, about 2 miles away, is a dealer for this tin roofing. It will have baked enamel paint on it as well and we have chosen green as the color. He has given us a very good price.

Ox Power and Agroforestry

Submitted by Mark Chatburn

From: "mark chatburn" mark-jon11@yahoo.com

To: Cow@pamho.net

Subject: agroforestry and ox power

Date: Sunday, June 24, 2001 8:20 PM

I am including below the basics of agroforestry which can be found at ICRAF - International Center for Research in Agroforestry.

A few comments first:

Agroforests, using protected or unprotected animals, are an ancient way of life. To reinstate an agroforest landscape with the use of farm animal draft power could well be a viable life-style option. Its feasibility lies in the complexity and diversity of the systems. Agroforests, or their variant names of agroecology, home gardens and permacultural landscapes are a mirror negative of the present percentages of land and tree cover. Presently, tree cover could be from 10-20% in many developed areas. The concept here would be for the opposite to be the case and have a 80-90% tree cover with only a few areas of the opposite. So, whereas now there are islands of trees and fields of space, in the agroforests there will be islands of space in a field of trees, of all sizes and all ages abundant in their biodiversity.

http://www.icraf.cgiar.org/ag_facts/ag_facts.htm#systems

Agroforestry-the basics

Put simply, agroforestry is using trees on farms. ICRAF defines agroforestry as a dynamic, ecologically based, natural resources management system that, through the integration of trees on farms and in the agricultural landscape, diversifies and sustains production for increased social, economic and environmental benefits for land users

at all levels.

Trees can provide many products, such as: timber, food, fruit, nuts, fodder, fuelwood, poles, fibers, mulch, medicines, cosmetics, oils, and resins. Trees can also provide services: such as to provide food, security; conserve soils; enhance soil fertility; improve microclimates; provide living fences for crops and fruit trees; demarcate boundaries; sequester carbon; stabilize watersheds; protect biodiversity; reclaim degraded lands; and control weeds.

Using trees on farms is an ancient art. For millennia, farmers have nurtured trees on their farm and pasture lands and around their homes. Neither the concept nor the practice of agroforestry is new. But agroforestry researchers are developing that ancient art into a science.

Agroforestry systems

There are two basic categories of agroforestry systems: simultaneous and sequential.

In a simultaneous system, trees and crops or animals grow together, at the same time on the same piece of land. These are the systems in which trees and crops compete most for light, water and nutrients.

Competition is minimized by spacing and other means. Trees in a simultaneous system should not be growing fast when the crop is growing rapidly, to minimize competition. Trees should have roots that reach deeper than the crop roots. They should have a small canopy, so they do not shade out too much light from the crops.

In sequential systems, crops and trees

take turns in occupying most of the same space. The systems generally start with crops and end with trees. The time sequence keeps competition to a minimum. Trees in a sequential system should grow rapidly when crops are not growing, recycle nutrients from deep layers, fix nitrogen and have a large canopy to help suppress weeds.

Simultaneous systems: boundary plantings, contour hedges, live hedges and fences, hedgerow intercropping (alley cropping), parklands systems, silvopastoral systems, agroforests, shaded perennial crops, windbreaks,

Sequential systems: shifting cultivation, relay intercropping, improved fallows, taungya systems, and multistrata systems (this system can also be simultaneous)

A brief primer of terms describing these systems:

Simultaneous systems: Many simultaneous systems are linear arrangements; the trees or shrubs all appear in a row, or in strips if there is more than one row. Boundary plantings are trees used to delineate plots or farms. The trees forming the boundary can also provide wood, fodder or other products. Contour hedges are planted to prevent erosion and form biological terraces. Living hedges, live fences and woody strips are all variations on the technique of using shrubs or bushes to form a continuous barrier. They are used to form animal paddocks, but they can provide feed and various other products as well. Windbreaks or shelterbelts are used to protect crops or animals. These techniques also conserve soil

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Homeopathic Cures for Cow Diseases

Excerpts from a speech presented to the Indian government by Mrs. Rosalie Malik (Labangalatika dasi), B-6, Parijat, Raikar Park, Roha, Dist.: Raigad (M.S.) 402-109

My husband and I have a 30-acre farm near Roha in Maharashtra growing mango trees, cashew, guava, sitaphal, coconut, bamboo and others. We keep now 26 cows and bulls and we use slurry from the Bio Gas plant together with straw waste and leaf-mulch as fertilizer, and diluted cow urine as a pest repellent spray.

We are of course interested in natural medicine for our cows and we have learned a few ayurvedic remedies, but all herbs are not readily available, they are becoming scarce and therefore costly because of loss of forest area. Even garlic is costly which is most useful in treatment for cattle.

I took up homeopathy, as I knew a little about it for treating the family. Although it may not be considered an Indian tradition yet Mahatma Gandhi recognized that homeopathy was safe, affordable and very effective treatment for the people of India.

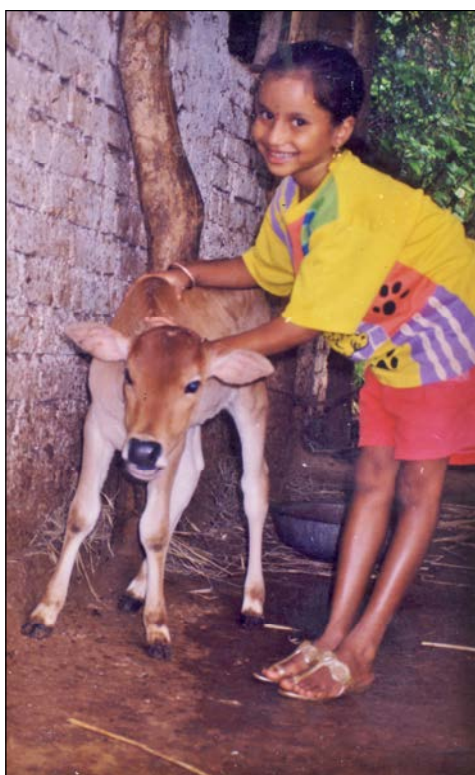
For cattle practice I discovered a book: "Treatment of Cattle by Homeopathy", by George Mcleod, published in India by Jain Publishers in Delhi, Tel# 777043, 7770572, 7536418

There is also another book: "Therapeutics of Veterinary Homeopathy" by B.P. Madreswar, an Indian veterinary surgeon and is based on George Mcleod's book with acknowledgment of course. However, there are some mistakes, which I can inform you of if you wish. But it is still a very useful book as it covers diseases better known here in India.

Homeopathy has a different approach from allopathy, not to destroy the bacteria but to treat the patient's

reaction to the illness. Allopathy suppresses symptoms but homeopathy strengthens immunity. Homeopathy has no side effects.

In our area the vet is not easily available, and besides we do not like the



Neela (cowherd's daughter) and Purnima at Labangalatika's farm in India.

use of strepto-penicillin, sulfa drugs and vaccines that have heavy side effects and do long term damage to the animal that may be worse than the disease itself. And the cows hate such treatment and may also become your enemy after being all tied up with a needle by force.

The medicines are all natural, made from plants, animals or mineral sources. The mother tincture is diluted

in water and potentized by vigorous shaking or by bringing the bottle down on a soft surface a certain number of times. Then again it is further diluted and succussed and so on till the required potency is reached. The more this is done, the more powerful the medicine.

Homeopathy has very good preventive medicines, called nosodes, or oral vaccines made from actual diseased material, rendered harmless by potentizing, but highly effective in preventing disease and also in curing it if necessary. Many poisonous plants such as Belladonna and also snake venoms are rendered harmless by potentizing and are extremely useful in treating serious diseases, with symptoms similar to those caused by the snake bite itself, like Black Water Fever, hemorrhages and are also antidotes for the snake bite itself.

You take one drop of the original substance, a virus or poison and add 99 drops of water or grain alcohol, shake it hard against a soft firm surface (the bottle) again take one drop of that and dilute with 99 more drops water or grain alcohol and shake it. Do this 30 times at least for it to be harmless. You can go up to 200 C or 1M & 1000 times or more for higher potency depending on need. So it becomes harmless but by shaking or "Succussion" it becomes very potent....highly energized..It is actually atomic energy. The medicine is energy pattern and whatever symptoms of illness the original substance produced on the body this diluted and potentized medicine will cure. It does amazingly. So in this way the Foot and Mouth virus can be used to prevent and cure and since this virus seems to mutate, it is good to get the exact one at the time. I don't know any manufacturers...I got no response when I tried to find out, but one can do at home without much trouble. I told this to an agency in Gujarat who

(Continued on page 14)

Ox Power vs Tractors

Submitted by Tab Mattler (Taraka das)

Quotes from His Divine Grace A.C. Bhaktivedanta Prabhupada

From: Taraka.ACBSP@pamho.net
To: "Cow (Protection and related issues)" Cow@pamho.net; "cowz" cowz@jc-net.com; "Taraka dasa" tarakadas@aol.com
Subject: Re: Use of tractors
Date: Friday, June 22, 2001 3:39 PM

Interview with Tejiyas dasa by Paramananda dasa in Mayapura, 1982 (This interview appeared in the "Iskcon Farm Newsletter", Vol.2 No.1

Many times in Hyderabad Prabhupada talked about the tractor. He said the tractor has spoiled the whole society. He said, "Because there is tractor then there is no use for the bull." So many times he discussed. And he said, "Then what are you going to do, what to do, what to do. And then you will cut their throat." He said, "You will see. It is sure to come. If you do not use the bulls for plowing, one day you will say, let us cut their throats." And it is a fact. People will get them and then they will send them away and sell them, kick them out. It has to happen on our farms if we don't use the bulls for plowing. What will you do when you have hundreds and hundreds of animals and you are getting more and more animals?

Ref. VedaBase, Letter to: Balavanta -- Bombay 3 January, 1977

So, take more land and engage them in agriculture, plowing by the bulls instead of tractor. Bulls can be engaged in plowing and transporting. Nice bullock carts village to village

for preaching. Make the farm the center and go ten miles this side, ten miles that side, ten miles this side, etc., with four bullock carts. Sell books and preach and live peacefully on the farm. People used to engage the bull for this purpose. So there was no problem which way to utilize them. First of all this artificial way should be stopped, and the bulls should be engaged in plowing and transporting, and smashing the grains. To avoid machinery,



Teamsters going out to the fields with oxen to rake hay in Russia.

petrol, machine oil, by nature's way.
Ref. VedaBase, Morning Walk, February 12, 1976, Mayapura

Hridayananda: They think this is progress, everyone can lie down and the machines will work.

Prabhupada: Yes, machine, inventing machine means one machine can work for fifty men. The banks are using this, what is that, computer?

Hridayananda: Yes, everyone is using computers.

Prabhupada: To save money. Machine means unemployment for many. Tractor, they're using, they're unemployment for bulls and plowmen and then the bulls have to be killed. This is going on. Unemployment, then kill them.

Vietnam, send all the men to fight and kill them. As soon as there is overpopulation, they declare war so that people may be killed.

Ref. VedaBase, Morning Walk, February 3, 1976, Mayapura

Prabhupada: Bull will not supply milk, so there is no use. It must be killed. Otherwise they are ferocious animal. You have made this law. The

cows may be given some time to be killed, but the bulls should be killed immediately. This is their law.

Hari-sauri: Nor do the farmers actually want to keep them anyway.

Prabhupada: No.

Hari-sauri: They are useless animals.

Prabhupada: Simply expensive. But here in India they know how to utilize bulls -- for transportation, for plowing and so many other things.

Tamala Krsna: Such a shortage of fuel, but there is no shortage of fuel with a bull.

Prabhupada: No, rather, it will supply you gobar, fuel. Whatever he will eat, he will give you fuel.

Tamala Krsna: In return.

Prabhupada: In return.

Jayapataka: But now the government is trying to teach the people that they should buy tractors and kill the calves.

Prabhupada: Huh?

Jayapataka: They want to have..., make tractors popular and then...

Prabhupada: Kill the bulls. They were

(Continued on page 11)

(Continued from page 5)

typical multi-purpose agroforestry tree. Fast growing, high protein pods and leaves for fodder, nitrogen-fixing, providers of nuts, fruits, fuel wood, construction poles, easy to adapt to ag practices, these are just some of the benefits the agroforest gives.

To include such trees into an overall plan for cow protection is indeed a priority, if not a necessity. Let's hope the plan develops, and more than hope—plan for the plan's development. Thank you for your encouragement. Mark.

From: Panaratna.ACBSP@pamho.net
To: mark-jon11@yahoo.com; Cow@pamho.net
Subject: Re: agroforestry and ox power
Date: Saturday, June 30, 2001 1:30 PM

The tree is lucaena (In India known as subabul)

Western Cows are Descended From Pigs?

We, the editors of ISCOWP, would like to address one article that appeared in the last issue of the ISCOWP News. In his paper "Cow Therapy, A Glimpse" Dr.

Gaurashankar stated that western cows were descended from pigs and inferior to Indian cows.

Our disclaimer on page 2 states we do not always agree with the opinions of the articles in the ISCOWP newsletter that are not written by the ISCOWP staff. Due to the inquiries concerning this article we are printing in this issue a reply to the inquiry of one of our readers.

"It is common sense that indigenous breeds do best in their own locale. Indian cows are best in India and western cows are best in the western countries of their origin. Just like there are

plants that grow in different parts of the world that can cure diseases that are common in those same areas. It is Krsna's plan and arrangement since He is ultimately the creator of all things.

To say that western cows are not cows is not common sense. But the crossbreeding of western cows and Indian cows for the purposes of increased milk, etc. has not produced an animal that is very productive in India. This crossbreeding is man playing God for his own selfish desires. Therefore, of course, the resultant breed is not as capable as the indigenous breed in coping with India's environment and therefore gives less profit to the Indian farmer.



Kurma Rupa prabhu feeds and cares for the cows that roam the streets in Vrindavana, India. He believes that if every family took in a cow or two the stray cow dilemma in Vrindavana would be solved.

But that is not Krsna's mistake; it is man's mistake. However, since the devotees in India have crossbred their cows they must take care of these cows for their entire lives. Krsna sees all his children, both animal and human as his children and worthy of protection. Just as a father sees all his sons with love regardless of whether one son may be more capable than another.

This Ministry recommends that in-

digenous breeds be maintained and that crossbreeding with western breeds be discouraged. In fact, Srila Prabhupada was quite proud of one cow at Gita Nagari in the USA. In the following conversation there is no indication that Srila Prabhupada considered the western cow inferior, or not a cow.

From Srila Prabhupada conversation with George Harrison, July 26, 1976 London

Prabhupāda: We have got one cow, many cows in Philadelphia. The milk bags, she gives hundred and two pounds daily.

George Harrison: Of milk? Who owns this? Who milks the cows?

Gurudāsa: Some of the devotees.

Prabhupāda: We have got tanks for storing milk, tanks.

George Harrison: Yes?

Prabhupāda: Yes. All up-to-date refrigerator and everything. That extra milk they are selling. Similarly, in New Vrindaban we are getting one thousand pounds milk daily. One thousand pounds.

Mukunda: That's our place in West Virginia.

In the very beginning days of New Vrindavan there was a black cow by the name of Kalya. Srila Prabhupada liked her milk very much. He said

her milk was the best milk he had in 25 years. That would be in the end of 1969, beginning of 1970. During that 25-year period Srila Prabhupada had been almost exclusively in India. So the best milk he had in 25 years was from an American cow.

(Continued from page 9)

criticizing us because in our goshalla we maintain the male calves.

Prabhupada: Huh? What is that economical progressing? So that means busy fool. Fool, they do not know how to satisfy the economic problem. That is recommended in the Bhagavad-gita, annad bhavanti bhutani: [Bg. 3.14] You grow food grains. Then all economic question... But why you are not producing food grains? Why you are producing iron stools and instruments and motor and tire and collecting petrol far away from Arabia? That is... Krsna never says that "You do all this nonsense." He said, "Grow food grains." Why don't you do that? That means fools. After all, you have to eat. So you are not busy in growing your food, but you are busy in producing tire tubes, motor cars, stools and instruments. Then how you will get your food? Where is your economic? First economic is, first necessity, you must eat.

Pusta Krsna: But with the tire tubes and nuts and bolts they can make a tractor. And the tractor can help produce food, they think, much faster.

Prabhupada: No, that is waste of energy. Because you are eating the bulls, therefore you require a tractor. Otherwise you don't kill the bulls. This animal will do the business of tractor.

Devotee (4): It will work.

Prabhupada: But you want to eat them, so you must find out...

Indian man (1): Some other means.

Prabhupada: Replacement. That's it.

Ref. VedaBase, New Orleans, August 1, 1975 Walk around NEW TALAVANA FARM

Nityananda: We can go this way, here. This is all our machinery here.

Prabhupada: Hm. So already some machine idle. You had to spend so much, but they are lying idle. That is not good. That is the defect of machine. If you cannot ply it, then it is dead loss.

Brahmananda: If you cannot what?

Prabhupada: It is dead loss if you cannot work with the machine.

Brahmananda: Yes, yes.

Prabhupada: But when you go to purchase you have to pay lots of money. Now they will be rusty with water and gradually useless. How much money you have invested?

Nityananda: Thousands.

Prabhupada: Just see. This is the defect of machine. If you cannot utilize it, then it is dead loss.

Brahmananda: Where are the tractors kept?

Nityananda: One's at the house, and one's in the field.

Prabhupada: So they have to be utilized or rejected, these machines?

Nityananda: Yes, they all have a purpose. We use them from time to time.

Prabhupada: But now they are kept open and the...

Nityananda: Well, we are building a shed to keep them out of the rain.

Prabhupada: In the meantime it will be finished. By the time you finish your shed, it is finished. Sastre sastre dal phariyaga.(?) "Some women were dressing to go to a fair, and when they were dressed, the fair was finished." (laughter) Utilize them. Otherwise, while they are in working order, sell them. Don't keep in that way, neglected way. Either utilize it or sell it at any cost. Otherwise they are useless.

Devotee: Srila Prabhupada? A materialist or someone who wouldn't know, he may say that when the bull is not plowing, all he is doing is eating. You have to pay money to feed him grain or to grow grain to feed the bull.

Prabhupada: They will grow, and they will eat. Rather, they will help you for your eating. The father also eats, but he maintains the family. Therefore the bull is considered as father and the cow as mother. Mother gives milk, and the bull grows food grains for man. Therefore

Caitanya Mahaprabhu first challenged Kazi that "What is your religion, that you eat your father and mother?" Both the bulls and the cows are important because the bull will produce food grain and the cow will supply milk. They should be utilized properly. That is human intelligence. This is filling up with paddy or...? No?

Nityananda: With food for the cows. This one has forage or fodder, and that one has grain.

Prabhupada: So everything is for the animals. Nothing for the man?

Nityananda: The cows give us milk.

Prabhupada: That's all? And you are not growing any food grains? Why?

Nityananda: Er... We've been trying to establish self-sufficient cow protection program first, to grow our own food for the cows.

Brahmananda: There is no land available for growing rice or wheat?

Nityananda: Yes, but the number of devotees we have to do it...

Brahmananda: But you have so many machines.

Prabhupada: All these machines require oiling and keeping nicely. Otherwise it will spoil.

Nityananda: Down the road we have fifteen acres of sorghum, grain for the cows.

Prabhupada: And everything for the cows, but what for the man? They will give everything for cows because they will eat cows, other farmers. But you utilize the animals for growing your food.

Brahmananda: The idea is we should maintain the animals, but then the animals should provide foodstuffs for the men.

Prabhupada: Yes.

Brahmananda: And that way there is cooperation.

Prabhupada: Yes. The animals, bulls, should have helped... instead of that machine. Then it is properly utilized.

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Jaipur, (India) Cow Protection by Ramanuja das

Our herd of 10 is exclusively Tharparkars - no Jersey, no Holstein and nothing in between. Pure, pedigree, and with full papers on their lineage and milk records of their mothers as well as the history of their fathers.

(The Tharparkar a *Bos indicus* breed is used for milk production and as draft animals. Tharparkar are of the lyrehorned type of zebu cattle. The Tharparkar came into prominence during the first World War when some animals were taken to supply milk for the Near East army camps. Here their capacity for production under rigorous feeding and unfavorable environmental conditions at once became apparent.

When left on arid pasture the milk production is approximately 1135 kg per lactation, while those animals maintained in the villages average 1980 kg.

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arid pasture the milk production is approximately 1135 kg per lactation, while those animals maintained in the villages average 1980 kg.

Average animals of the Tharparkar breed are strongly built, medium-sized, with straight limbs and good feet, and with an alert and springy carriage. If they are not handled frequently they are apt to be wild and vicious. Thari cows are said to be very hardy and resistant to several tropical diseases and are excellent foragers.)

You asked about the drought conditions in India. About 170 million people in 100,000 villages - more than one sixth of the country - have been badly hit. The storage of water is at its lowest in a decade, according to the Central Ground Water Board. The groundwater table has dropped two to four meters from last years critically low levels.

Rajasthan (where we are located) is facing its third consecutive year of

Rajasthan and in the Thar region, where our breed of cows originate, they've had drought in 31 of the past 38 years. The Indian Railways has done 700 train trips just in Rajasthan, Gujarat and Orissa, transporting fodder and water - more than 20,000 wagons in Gujarat itself.

Yes, we do have a biogas setup, in fact a very large 35 cu/m plant which will treat all the sewage from the temple project. It's a night soil plant and was

the first of its kind in Rajasthan. The government paid for the whole thing, 10 lacs. I've been using the slurry on our fields and it's potent stuff. Actually it's so rich that at times it has burnt the crops as the seedlings emerge from the ground!! We have to dilute it a bit. The gobar we keep and use exclusively for the vermiculture. Presently we get around 10-12 tons per year, but in the near future we'll be increasing this to



These indigenous Tharparkar animals do well in the arid region of Jaipur, India.

drought. Last year, 23,406 villages were affected. This year the figure stands at 30,585 affecting over 33 million people. Social scientists attribute the rising debt and crop failures and the pressure of survival, to the rising suicide rate in the state. More than 700 farmers have committed suicide since 1999. Over 8.9 million hectares of crops have been affected due to this years' drought alone. Water storage in the state's three main reservoirs stands at 17.5 percent. 16 of the last 20 years have seen drought in

roughly 40 tons yearly. The profit from the sale of compost is used directly for the goshalla. We only use the castings at the moment as we're in the process of rebuilding our soil which is highly alkaline apart from being mainly sand. After some time we will introduce worms directly into the soil itself, but it needs a lot of work first of all. The castings are first class, nothing comes close. I was composting traditionally before, but this method saves tons of work and is a better quality product.

(Continued from page 11)

And others, they cannot utilize these animals. Therefore, what they will do? Naturally they will send to slaughterhouse. But we are not going to send to the slaughterhouse. Then what we will do? They must be utilized. Otherwise simply for growing food that the cows and bulls we engage ourself? You are already feeling burden because there are so many bull calves. You were asking me, "What we shall do with so many bulls?"

Nityananda: Well, when they grow up we will train them as oxen.

Prabhupada: No, what the oxen will do?

Nityananda: Plow the fields.

Prabhupada: Yes. That is wanted. Transport, plowing fields. That is wanted. And unless our men are trained up, Krsna conscious, they will think, "What is the use of taking care of the plows (cows)?

Better go to the city, earn money and eat them."

Ref. VedaBase, Morning Walk, Rome, May 27, 1974

Bhagavan: Now, recently, in the last war in the Middle East, Saudi Arabians raised the price of the oil over double now, I think, as a pressure to the western countries to do things in their favor. Now they realized that the market for oil is in such great demand that they don't have to lower the price after the war, but they are going to keep the price. And actually the price is still increasing. So this is causing inflation.

Prabhupada: So this problem will be solved as soon as we are localized. Petrol is required for transport, but if you

are localized, there is no question of transport. You don't require petrol. Suppose in New Vrindaban, we stay, we don't go anywhere. Then where is the need of petrol?

Bhagavan: Petrol they also use for heating. And electricity.

Prabhupada: No, heating. Heating we can do by wood. By nature.

Dhananjaya: I remember, Srila Prabhupada, you were saying that all we require is some oxen, and the oxen can carry.



20 years ago Balahadra spread manure with Jake and Duke and fam-

Prabhupada: Yes. The oxen will solve the problem of transport. That bullock cart. Just like Krsna, when He was transferred from Gokula to Nandagrama, so they took all the bullock carts, and within a few hours they transported them, the whole thing, their luggage, family member, everything.

Bhagavan: How far can a bullock cart travel in one day?

Prabhupada: At least ten miles, very easily, very easily. And maximum he can travel fifteen miles, twenty miles. But when we are localized, we don't require to go beyond ten miles, five miles. Because we have created a

rubish civilization, therefore one is required to go fifty miles for earning bread, hundred miles, hanging.

Dhananjaya: Like in Los Angeles.

Prabhupada: Why Los Angeles? Everywhere. In New York they are coming from hundred miles. From the other side of the island. First ferry steamer, then bus, then so on, so on. Three hours, four hours, they spend for transport.

Satsvarupa: Is this an ideal solution or a practical one?

Prabhupada: This is practical.

Satsvarupa: Because sometimes we say that actually we cannot change the course of the...

Prabhupada: No, no. Our society will be ideal by practical application.

Satsvarupa: If we stopped all the transportation industry, there would be huge unemployment. It would be a great...

Prabhupada: No, no, we are not going to stop employment. We live like

this.

You see. If you like, you live like us.

Bhagavan: Example.

Prabhupada: Example.

Satsvarupa: Not that we dictate to the... Not that we are going to force everyone.

Prabhupada: No, we are not going to force anyone. "Our mode of living is like this. If you like you can adopt." Just like we chant Hare Krsna mantra. So we are not forcing anyone that "You also, you must chant." No. We live like this.

Dhananjaya: So in fact, Srila Prabhupada, we should start using bullock.

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are trying to help animals there with Foot and Mouth epidemic by trying natural medicines. So let's see if they take it up.

Administration for cows I do by filling a 1 dram bottle with sugar pills size 30 and putting 10 to 12 drops of liquid medicine in it. This is one dose. And then I give it by mouth. It is immediately absorbed into the system by the saliva. It doesn't have to be swallowed and digested. The dose can also be given in half a cup of water by hollow bamboo or horn, but I'm not familiar with that. Most of our cows and especially calves are used to taking medicine in this way and are eager to take sugar pills. In fact you have to hold onto the bottle tightly. One two year old bull is always coming up to me looking for some medicine on sugar pills which he once had when he was a few months old.

A 30 ml bottle costs about 26 rupees and for cow doses there are 60, so for them it works out about 50 paise a dose. Homeopathy is relatively inexpensive. For humans it is much cheaper of course as one dose would be about 4 pills only out of a 1 dram bottle. You have to keep the medicine away from strong smells like garlic, peppermint, carbolic soap and so on and never touch it with the hands or the potency will be lost.

The following are some diseases that I have cured by Homeopathy.

BLOODY MILK: Our cow Haripriya soon after delivery suddenly gave bright red blood from one teat instead of milk. It was shocking to me, but I was glad I had the homeopathic medicine at home IPECAC 30C. I gave her three times a day for four days for full recovery. The very next day the blood had changed to pinkish milk.

DIARRHEA: A new calf had an onset

of liquid yellow diarrhea after drinking too much milk from her mother. It was the first calf for the mother and she was nervous about getting milked. In the confusion the calf drank too much. We gave 6 doses of Aconite (6C) 1- 1/2 hours apart according to the prescription in the book, and she completely recovered. ACONITE is also good for treating shock.

For calf scours I have found that ARSENIC Alb 200C works well given 5 doses every 2 hours for water diarrhea. MERCURIUS COR 200C 4 times a day for two days is good for bloody dysentery. The two can be combined.

EYE DISEASE: After I had been away for a couple of weeks, I found on return an epidemic of eye disease in our herd. It starts by watery eyes, then turns into red swollen eyes and pus discharge, and finally the eye turns white with corneal ulceration. One bull had reached this stage and his eye had become white. I followed the treatment in George McLeod's book exactly. The early watery eye stage cleared up in a few days with Kali Hydroicum 200. 3 times a day for four days. To the bull, Gaura, I gave Argentum Nit 30C, 3 times a day for a week to clear up discharge and inflammation. And I gave him SILICEA 200C once a day for a week and the white ulceration disappeared like magic. SILICEA causes reabsorption of scar tissue. In a week he became completely normal.

MASTITIS: I don't have experience with our cows, but one cow did have one quarter of her udder swollen for some reason and I found PHYTOLOCCA very helpful, 4 doses every 3 hours. There are medicines according to the specific symptoms, for example, BELLADONNA is for acute mastitis, swollen red and painful udder, and cow feeling hot.

FOOT and MOUTH Disease: It is going on in the next two villages but doesn't seem to be very severe, just a few have affected feet. They roam everywhere

and the vet did not come and it was said there was no vaccine available anyway. The boy who comes every day to work for us, his bull was affected so I gave him a weeks treatment of MERC SOL 200C and NATRUM MUR 200C, 3 times a day each, and I also gave him ointment from Indian Herbs (Himax) to put on his foot. He is fully recovered. For our animals I am giving weekly one dose of each, MERC SOL 30C, ARSENIC ALB 30C and VARIOLINUM 30C. In Madrewa's book he suggests to combine them, but I was advised against combining such different medicines at once. So I gave separately at intervals. For mouth sores BORAX 30C is a remedy. So far our herd is alright. We also wash their feet in salt water.

COW POX: Cow Pox can be treated with Variolinum 30C one dose daily for three days will cut short the infection and help prevent secondary infection from the pustules which are the worst part of it. If the pustules look like craters and have yellowish base and discharge then Kali Bich 30 should be given also twice daily for 5 days. CUPRUM MET 6C can be given for pox like eruptions if there are muscular cramps and spasms or diarrhea. ANTIMONIUM CRUD 6C can be given for pustular lesions especially if skin is dry and there is indigestion. RAUNCULUS BULBOSUS is especially good for the pustules on the udder. Any one of these medicines, the most applicable can be given along with the VARIOLIN. Also the VARIOLIN can be given as a preventative, a dose for each cow once a month for 3 months. The dose is 15 drops of liquid either in water or on sugar globules available from the Homeopathic pharmacies.

(Continued from page 7)

moisture, give shelter to the farm home and beautify the landscape.

In hedgerow intercropping or alley cropping trees are planted on land along with crops; the crops are grown in alleys between the rows of trees. The aim is to maintain soil fertility by planting nitrogen-fixing leguminous shrubs in areas where shortage of land makes long fallow periods difficult or impossible.

However, because of the competition between hedge and crop for moisture and nutrients, alley cropping has proved practical only in limited circumstances.

Parkland systems include combinations of trees and crops in which the woody component is a permanent uperstory. The tree cover can be quite open, as it is in the Sahel where sorghum is grown under *Faidherbia albida*. It can also be almost closed, as shade trees in a coffee or cocoa plantation. Multipurpose trees, such as fruit trees, may be scattered on the cropland.

Silvopastoral systems also incorporate a discontinuous tree story, over a continuous grass cover. Animals, the chief beneficiaries of these combinations, can graze in pastureland under trees or they can feed off tree fodder or browse. The fodder from the trees can also be cut and carried to livestock penned elsewhere.

Agroforests are a special category of agroforestry. An agroforest is a plant community that resembles a natural forest in that it is generally multistrata and contains large, mature trees and shade-tolerant understory plants. Agroforests are managed; an example is the home garden, well known in the humid tropics. Usually grown near a homestead and smaller than other agroforests, it contains many different plant species of various sizes, types and growth cycles. Home gardens are

important in providing a wide variety of foods and other domestic needs as well as some commercial products.

Sequential systems:

At certain times in the cycle of a sequential system, trees are the only component. Crops or animals occur in other parts of the cycle, either with or without trees. Probably the best known system of this type is traditional shifting or swidden cultivation, also known as slash-and-burn agriculture, the most extensive farming system in the humid tropics. Farmers cut, let dry and burn the forest vegetation, then plant crops or pastures, using the ash as fertilizer to enrich (temporarily) the nutrient-poor soil. They stay for as long as the soil can support their crops-usually two or three cycles-and then let a forest fallow grow for 15-30 years until sufficient nutrients accumulate in the biomass. Then farmers return, slash and burn the site, and the cycle continues.

This traditional practice works well and was sustainable for millennia-but it depends on low population pressures, where the farmers are few and the forests vast. With increasingly dense populations and shrinking forests, the cycles become shorter and shorter until they are no longer sustainable. The forest does not have time to accumulate enough nutrients in its biomass-the fallow period is just too short.

Relay cropping is a very promising system for areas with only one rainy season a year. Both crops and trees are planted at the beginning of the rains, but the crops grow rapidly and the trees slowly, thus minimizing competition. The trees grow rapidly after the crop is harvested, forming a short-term fallow during the dry season. Before the next rainy season, trees drop their leaflets, providing mulch; they are then cut and har-

vested for poles or firewood. The crop is planted again, benefiting from nutrients and improved soil physical properties, while the trees begin to coppice and resprout from seeds.

Multistrata systems also involve planting annual crops with several species of trees, both at definite spacings. Crops are dominant while the trees get established and grow. Tree species of different eventual size, shape and use (fruit, timber) form two or more strata or canopies, with or without simultaneous cropping. A leguminous ground cover is often planted to control weeds and is sometimes grazed by cattle or small ruminants.

Improved fallows are used in the humid tropics as an improvement of shifting cultivation by shortening the fallow period and increasing its biomass and nutrient accumulation. Improved fallows are also used in sub-humid tropics to occupy land that is not cropped for a few months or for two to three years, to accumulate biomass and nutrients as well as to smother weeds. Improved fallow species are normally planted shortly before or after the crops are harvested. Fast-growing, nitrogen-fixing species are used, as they do not compete with crops.

In the taungya system, the forest service allows the farmer to use land in a forest plot planted to young trees. The farmer cares for the trees and at the same time grows crops for several seasons until the trees grow big enough to cover them; then the forest service takes over the plots again.

The back page photo shows Bhumi, Bhima and friends going out to the fresh green pastures of spring after a long winter.



THE ISCOWP NEWS

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