

Expanding Horizons in Worldwide Range Management¹

C. KENNETH PEARSE

Agricultural Officer (Pasture Management), Pasture and Fodder Crops Branch, FAO, Rome, Italy²

Highlight

Range management must play an increasingly important role in the efforts of the developing countries to increase their output of livestock products. Technical assistance to guide improvement in the management and use of range and pasture resources can best be provided by international organizations. It is essential to establish a philosophy of range management based on sound ecological principles and shared by a body of dedicated range specialists in each of the countries. Gaining acceptance of such a doctrine, and building up such a body of specialists, then becomes the real objective of technical assistance in range management.

To evaluate the possibilities for expansion of range management horizons throughout the world, it is useful to think back to the early days of the range in the U.S.A. Since the turn of the century, our production and efficiency of use has increased tremendously. Far more important, however, has been the very great increase in the understanding and appreciation of the value and use of our range resources. Such an understanding could not have been achieved without the build-up of a body of range scientists and practical range managers dedicated to a common goal, and the formation of a philosophy of range management aimed at sound use of our grazing lands. It is this development that has been largely responsible for our progress, and will serve as the basis for future expansion.

Expanding Horizons in the Developing Countries

In most of the developing countries, the range problems are strikingly similar to those that faced the pioneer range men in western U.S.A. a half century ago. Governments still tend to take grasslands for granted and give them minimum consideration. No country has more than a handful of competent grassland scientists and their voices are seldom heard or heeded. The level of management is pitifully low but with the comparatively low prices received for livestock products and the difficulties of transport, intensive management is difficult to justify. Lack of understanding and support, and political expediency make it difficult or impossible to maintain the continued programs of investigation or regulation that are essential for progress.

There are additional obstacles. Ethnic tradition and religious dogma have resulted in grazing practices and ways of life that have gone unchanged for centuries and cannot be readily modified. Some of these traditional methods, it is true, have been established over generations as the best means of survival in a particular environment. To change them simply because they differ from our methods and without understanding the reasons for them can be disastrous. But they should be re-evaluated in the light of present conditions to see if they still provide the best basis for management.

Range management problems differ from country to country. The American range technician

assigned to Egypt's Western Desert, where annual rainfall averages less than four inches, will be faced with new and challenging situations and problems. He would find different, but no less difficult, problems on Guatemala's Pacific slope where annual rainfall exceeds 100 inches per year. Other range environments appear much more familiar. Parts of Iran's rangelands look much like those of Utah or Nevada. In Lebanon conditions are similar to California's Central Valley. Yet practices that are proven at home can seldom be transferred directly, but must be applied carefully with due regard to basic relationships.

Mediterranean and Near East.

—In the Mediterranean and Near East, stretching from Morocco to Egypt, Greece, Turkey, and on through Iran and Pakistan, range livestock production has long been established as a way of life. In this great expanse of desert and semi-desert rangeland, over-stocking is almost everywhere. Recent evidence indicates that this overstocking began only in recent times and not centuries ago as had been assumed. Records show, for example, that in Baluchistan livestock numbers more than doubled between 1901 and 1951.³ This being so, immediate action is necessary for it can no longer be said that the ranges have withstood abuse for centuries and will not deteriorate further.

Grazing is mainly in the hands of tribal leaders who seldom recognize either national boundaries or national authority. Tradition and the acceptance of livestock numbers as status symbols make change difficult. Nomadism has been accepted as the way of life that gives the best chance for survival under the rigorous climate and fluctuating forage supplies of the Near East. Un-

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²Presently Project Manager, Pasture and Fodder Crops, Investigation Project, UNDP(SF), Tehran, Iran.

³Lodge, Robert W. 1965. Range management research in West Pakistan. FAO Report 1968.

fortunately, nomadism also insures that practically each and every forage plant is closely grazed year after year, whenever it produces grazable herbage.

Many native plants have shown remarkable resistance to this abuse, but in recent decades pressures have increased. Water developments without corresponding grazing control have extended the areas of depletion. Animal health programs have helped to build up and maintain animal numbers. Emergency feeding programs are preventing some of the periodic decimation of herds and thus denying the rangelands even a few years of lightened stocking such as they formerly enjoyed following severe drought. And the increasingly widespread use of tractors has accelerated the misguided plowing of rangelands for marginal cereal production.

Opportunities for improved yields of livestock and livestock products are evident everywhere. Such seemingly obvious measures as culling nonproductive animals and improved and more timely marketing could probably reduce grazing pressures by 30% and double production almost immediately.

Throughout the area development of more supplemental forage and fodder supplies on cultivated lands, and closer integration of croplands and ranges is feasible and could contribute significantly to better yearlong nutrition of animals.

In short, great expansion of range livestock production throughout North Africa and the Near East is possible. The question is when and by what means it can be achieved.

Africa South of the Sahara.—In Africa south of the Sahara the situation is similar although prolonged heavy stocking has been confined to the savannah and drier areas, mainly on the northern parts and extending into the semi-desert. Progress in these

zones, where domestic livestock have long been established, will depend on obtaining better management through grazing control despite tribal customs and traditions which tend to resist change. Antipathy and enmity between pastoralists and farmers runs high and impedes the correlation of effort and resources that offers the best hope for providing adequate yearlong forage.

The more humid areas of Africa are mostly understocked. However, disease problems which hindered livestock raising are now being solved, and there are vast areas where animal production could soon be the most important industry. Large game populations present a unique situation and domestic livestock and game will have to be carefully integrated. Fortunately, at least some of the governments concerned seem to recognize the need for starting on a sound basis and for providing the essential research, training, extension, and administrative institutions that will help insure logical development and the maintenance of the basic forage and soil resource.

Latin America.—Grazing of the extensive native grasslands began soon after settlement. Conditions vary tremendously from the semi-desert ranges of northern Mexico to the dry tropical grass and brushlands of Central America, Peru, northern Chile, and Brazil's northeast; to the savannahs and llanos of Venezuela, Colombia, the Guianas, northern Brazil and Paraguay; to the pampas of Argentina and Uruguay; and to the steppes of Patagonia. Cattle and sheep, mainly of European origin, have spread over this vast area and everywhere the combination of abundant land, poor transportation, undeveloped markets and low prices has led to build-up of livestock numbers and little regard for, or reward from, management of the livestock, of the

range resource, or of the whole ranching enterprise. However, livestock production is of major importance and in many areas is the basis of the economy.

In recent years, mainly during the last decade, there has been a generally awakened interest in the possibilities of and the need for better range management. Natural conditions of climate, soils and vegetation are extremely favorable in much of the region. Some Government officials as well as ranchers are now recognizing the possibilities but there is little general understanding of the need for balancing livestock numbers with available forage supplies, the importance of adequate yearlong nutrition and other range and livestock management principles. Nevertheless, as in the Western United States when development was in a comparable stage, the possibilities for expanding production are great and change could be rapid. Considerable basic knowledge is available; it is beginning to be applied to local conditions and there is an awakening of the desire for higher returns through increased efficiency.

In the humid tropics of Central and South America livestock production is based primarily on grasslands established on land that was originally forest. Indigenous forage grasses are few and most pastures are composed of grasses naturalized from other parts of the world. Extensive and productive grazing lands have thus been established. Guinea grass (*Panicum maximum*), Jaraguá (*Hyparrhenia hirta*), Pará (*Brachiaria mutica*) and more recently Pangola (*Digitaria decumbens*), have been introduced and are well established. In many cases management is fairly adequate and production is good.

Demand for animal protein is increasing throughout tropical America to meet the recognized

need for more adequate nutrition and in response to a rising standard of living and an increased tourist trade. Also countries that have depended mainly on coffee, cocoa or bananas as a source of foreign exchange have been faced with saturated world markets and declining world prices. Among possible alternate export products, livestock is one of the most promising. Establishment of pastures for beef and dairy production is thus being stimulated. For example in Brazil, 900,000 ha of a total of 1,300,000 ha are being taken out of coffee production in the state of Paraná alone and most of this will go into grass. Similar programs are under way in Guatemala, El Salvador, Colombia and other coffee producing countries. Livestock development is being fostered and encouraged by Governments and doubtless will expand considerably.

Technical and Developmental Assistance

The diversity and complexity of many basic and interrelated problems of expanding range livestock development demand a broad scale attack that is beyond the resources of any developing nation. Group action and external assistance is essential.

The U.S. AID program and its various predecessor agencies have given a prominent place to range and pasture development in most of the more than 60 countries in which operations have been conducted. Other bilateral programs, notably those of France and Israel, have stressed range, ecology, livestock, and grassland aspects. Range management and related forage and fodder problems have received some attention from the large private foundations that operate in Latin America, Asia, and Africa.

Among the United Nations agencies, the Food and Agriculture Organization is primarily responsible for encouraging forage, fodder and livestock production and development. When it was founded 20 years ago, FAO was mainly a statistics gathering unit, seeking to level out shortages and surpluses of food and

fibre throughout the world. The need for rendering technical assistance in agriculture to the member nations was recognized from the beginning, but it was not until 1950 that the Expanded Technical Assistance Program of the United Nations permitted help through sending subject matter experts, providing limited equipment and organizing training centers and fellowships. This program is being vigorously continued and the Pasture and Fodder Crops Branch has 23 EPTA experts in the field or under recruitment.

In 1958, to help low income nations speed their social and economic progress, the United Nations established a Special Fund. Of the 659 major Special Fund projects now in operation in 130 developing countries, 265 are operated by FAO. Pasture and fodder crop development is an important aspect in 23 national and 2 regional projects, with 44 experts in Vegetation Survey, Ecology, Range Management, Pasture Agronomy, Taxonomy, Physiology and similar fields.

Many important basic fundamentals and recent trends in the concepts and methods of how best to pursue development aid are exemplified by procedures followed in the Special Fund projects. These may be highlighted as:

1. Attack is centered on specific, clearly defined problems which are integrated with the larger development problem. Requests for assistance receive detailed review by high level boards using reports of well qualified consultants before being approved. Thus, their technical, economic, political and practical feasibility are carefully considered before operations begin.

2. A team approach is used to insure a rounded attack. A project that is primarily in the field of range development may have in the team, in addition to Ecologists and Range Management experts, an Animal Nutritionist, a Biochemist, a Soil Surveyor, a Farm Machinery Expert and an Economist. Advice in other fields is provided by short-term consultants. Most teams include scientists from three, four or more countries.

3. Equipment and materials required are specified in the plan, and are provided either by the Government or the Special Fund.

4. Every possible means is used to insure a lasting impact and continued development long after the project has concluded. Governments must indicate their genuine interest by providing a major portion of the total cost. Local counterparts are required to work closely with the foreign experts; they receive on-the-job training as well as study abroad to prepare them for continuing the work. Whenever possible, projects are planned to include or lead into pre-investment surveys for actual development.

Appraisal of Results of Technical Assistance

During the past 20 years under the various programs of FAO and other agencies, many worthwhile activities have been initiated. Trials and demonstrations of improved grazing management, range reseeding, fodder production, forage conservation, water and soil conservation and other practices have demonstrated the economic benefits that can result in many countries. Surveys have been made and action programs recommended.

Often these activities are well received and are accepted with enthusiasm by the Governments as well as by farmers and stockmen. But a case-by-case appraisal of the lasting results of technical assistance is likely to be disappointing. Too often programs fall apart soon after the foreign expert leaves. Reports and recommendations, sometimes several on a single problem in the same country, are forgotten and lost. In country after country, range study enclosures, species adaptability trials, even whole experiment stations are abandoned.

Thus, tangible results from foreign technical aid seem far from adequate, especially when judged by Western standards and in the light of the possibilities. There are, however, important intangible benefits. Not the least of these is an increasing awareness of the importance and

value of well conceived, scientifically sound development plans for making better use of natural resources. This awareness may not yet be reflected by action programs but it is evident and is clearly growing. A scattering of scientists and technicians trained under technical assistance programs and convinced of the possibilities for progress are moving into positions of authority in their home countries. More and more of the top men in the Ministries of Agriculture; Department heads, Experiment Station Directors, Extension Directors and even some Deputy Ministers, not only have a technical understanding but also know their people—the villagers and the politicians—and know how to work with them. Requests for technical assistance are increasing.

Technical assistance has in the past often been sought as a way to obtain modern equipment or training junkets abroad or to develop ivory tower research institutes that contributed little except prestige. Now, more and more countries are focusing their attention on studies that will attract investment capital and on technical training and applied research that will bring quick results to bear on development needs. The developing countries themselves are quick to complain if assistance is not of top quality and are demanding that programs must promise early application and usable results.

This brings us to an important reason for the lack of follow-up action and the failure of past programs to make a lasting impact—shortage of funds. Private loans for livestock development, when available, cost in excess of 2%/month. Government loan funds are extremely limited. Doubtless in recognition of this, AID shifted its approach several years ago from technical to economic assistance, and emphasized

the financial aspect of development. And in FAO, Director-General Sen recently wrote:—

“During the last few years, FAO has changed from a primarily technical organization to become one of the world’s most important development agencies and is concentrating more and more on operational work. Out of some 65 million dollars to be spent this year through FAO, about 45 million dollars will be devoted to development operations”. (Letter from Director-General Sen to Ministers of Agriculture, August 1965).

The change in emphasis is significant and important. It will undoubtedly reduce the losses caused by lack of continuity and will promote real development that increases production, raises the standards of living, and improves national income. By shifting assistance programs to meet the financial as well as technical needs of the developing countries we can hope for much greater success in the future.

However, the shift from technical to economic assistance can easily go too far. The need for a new approach can generate a sense of urgency and, as frequently happens, the old methods, both good and bad, may be cast aside for the new. Technical and economic development are both needed, and neither can be hurried. Continued and consistent effort is essential.

Unfortunately, consistency of action may often be ruled out by political expediency. A biologist can appreciate the frustration of having field activities stopped for political reasons, perhaps for only a few weeks but just at the time when cross-pollinations must be made, or yield data taken. Politicians, on the other hand, are seldom aware of biological laws when making their decisions.

In my experience, international agencies are in the best

position to provide the many requirements of foreign aid. In a very real sense, FAO is the servant of its member governments. Therefore, political considerations do not form the basis for approval or denial, or continuing or breaking off assistance programs.

The professional staff of FAO includes representatives of 92 nations. It is a most gratifying and thrilling experience to work on a problem as a team member with scientists of half-a-dozen nationalities and to see how understanding and respect develop and differences in training and experience are used to advantage in solving common problems. Jealousies and frictions arising because of differences in origins are rare.

Working with a multi-national organization does present a challenge. Differences in approach, in work habits and methods and even in performance standards are real and can be frustrating. Much effort is being devoted to making FAO a more efficient organization.

Recruitment of well-qualified staff is a continuing problem. The range scientist in developing countries needs special qualifications. Good basic training, wide experience and mature judgment are the prerequisites but, beyond these, adaptability and imagination to adapt the principles and methods to widely different and often more rigorous ecological situations are needed. Just as important as technical qualifications is the ability to understand, respect and genuinely like people of other cultures. Good working relationships cannot be developed without these characteristics. Finally a nice sense of balance between patience and *laissez-faire*, between forceful insistence and compromise is invaluable. When, to all these requirements, the need for an understanding and sympathetic

wife is added, our recruitment difficulties can be appreciated.

This is an appeal to American range men to weigh other than monetary rewards when considering an assignment with FAO. These include the opportunities to live in foreign lands and thus obtain a broader understanding of other peoples, and the satisfaction of tackling a job that is of the greatest importance to mankind.

Perhaps I have emphasized too much the frustrations of the FAO officer and the disappointing lack of tangible results. To some, it is these very difficulties that seem to present an irresistible challenge that, once faced, cannot be ignored. Beyond that, the foreign aid technician often has great freedom to select the best possibilities for success in a virtually untouched field. If, as a result of his knowledge, skill, and perseverance, success can be achieved, his efforts can be extremely rewarding. True, expected results may be realized less frequently than at home where more knowledge has been

accumulated and work is highly organized, but one can seldom forget the tremendously greater possibilities for success on a really large scale.

Chances for Success

Some analysts believe that the limited success of aid programs in achieving the great social and economic goals that were hoped for is due to more basic deficiencies than have been generally recognized. These hold that the problem is neither technical nor financial, but cultural. Inevitably, people of developing countries have different aspirations, different impulses, different values from those who have gone through the political, economic, technical, and cultural revolutions that have been the history of the developed nations. They are beset by problems and often lacking in organization and skills to effectively confront these problems.

One overriding fact, however, must not be lost sight of: the immense urge and drive of underdeveloped countries to advance as rapidly as possible. This

fact, despite traditional, economic, cultural, institutional, and other handicaps, gives cause for optimism and underscores the need for sustained effort on broad fronts, for better analysis and understanding of obstacles and for the services of the most capable technicians.

Perhaps by way of a summary it can be said that what has held back the expansion of range management abroad is the lack of a doctrine of range management such as we know it. Sustained progress demands faith in the knowledge that management of natural resources based on sound ecological principles will lead to fullest development and productivity. To establish such a doctrine and make its force felt in the developing countries can be done only through the local people. Our job, then, becomes one of using technical assistance to build up in each country a body of scientists dedicated to a philosophy of range management and use that will yield the "greatest good for the greatest number in the long run".



Journals and Reprints for Foreign Use

Dr. A. A. Beetle, Head, Range Management, University of Wyoming has agreed to serve in assembling copies and reprints of the Journal of Range Management for distribution to foreign universities, colleges and government departments interested in range management and improvement. Word has come from Latin America that such material would be very helpful in bringing about a better appreciation of range and its potentialities in those countries. The International Relations Committee has made available current or recent issues on many occasions, usually to individual visitors, here for training or other purposes.

It is hoped that many members of the American Society of Range Management would donate copies,

either currently, or at their death, when such a proposal is called to their attention. Authors might donate a supply of reprints currently. Such gifts, of course, have value and could serve as deductible items for income tax purposes. Dr. Beetle's Section will receive, assemble, store and keep an inventory record of such material. Journals and reprints should be sent: care of Dr. A. A. Beetle, University Station, P. O. Box 3354, Laramie, Wyo. 82071.

Sixth World Forestry Congress

The Sixth World Forestry Congress was held in Madrid, Spain, June 6-18, 1966. There were 2,000 delegates, representing nearly 100 countries. The theme of the Congress was: "The Role of Forestry in the Changing World Economy". In some respects, this was a further expres-

sion of the concepts developed at the Fifth Congress in Seattle, 1960, on "Multiple Uses of Forest Lands". There were 10 Technical Commissions, none dealing specifically with Range Management. Several Commission sessions recognized the role of ecology, and in the National Park, Recreation, and Wildlife Session in particular, the nontimber values of both public and private forests were stressed. The conference as a whole called attention to the importance of tropical forests and the need for more attention in this area. The location of the Seventh Congress will be made public later by FAO. Informal invitations have been received from U.S.S.R., Argentina, and Chile. Tours before and after the Congress included forest and other land uses, and tourist interest in Spain, Portugal, and North Africa.—*Lloyd W. Swift*, Washington D.C.