Technical support activities include training of field agent; preparation of reference materials and training aids; trouble shooting and response to agents' requests for help. Training of field agents needs to be integral to the extension program, not an ad hoc service from other entities. Training is the principle means by which information, extension's stock-in-trade, flows through the system. Field agent training needs to be part of the program of technical liaison and support personnel and written into job descriptions.

Until we can provide better information think in terms of one TLS person for every twelve field agents, with half the TLS personnel formally trained to the same level of area research personnel and the other half with training, short-term and otherwise, well beyond that of the extension field agent.

d. Field Extension

The performance of the field agent is an exceptionally good indicator of the performance of the research-extension system. With few exceptions, inadequacy in his performance is due to deficiencies in the technology innovation system, more than to deficiencies of the agent.

Agent to farmer ratio or formal training of the agent, both often cited as major problems, are not nearly as important to agent performance as are the quality of the technological information the system makes available and the training and other technical support he gets from the rest of the research and extension system. The agent is an instrument of the system and cannot be expected to be an autonomous force in himself.

The field agent has two major responsibilities--to inform farmers of new (to the farmer) technological alternatives and to instruct them in how to use the technologies. He is also responsible for reporting on performance of the technology and farmer problems and needs.

We know of no rule of thumb for the number of field agents needed. It is clear, however, that many countries have more agents than they can support adequately, either technically or logistically. Almost all countries have a higher ratio of agents to TLS personnel than is desirable. Bryce and Evenson present some analyses that indicate LDC's tend to over invest in extension compared to research. (Bryce, James K. and Robert E. Evenson, Agricultural Research and Extension, Agricultural Development Council, 1975, pp 8-10). It will rarely be the case that more field agents can be justified. It is better to support the present ones more effectively.

3. The above discussion provides the best reasoning available to justify the need to address both research and extension in a single project. Working with both entities in a single project will provide a common orientation to both entities and will provide resources to both entities, dedicated to the