CHAPTER TWENTY-ONE

Adversity as Laboratory

The Years That Forged the PQNK Knowledge System

"I feel honoured and proud to have made that sacrifice in service of my fellow farming community."
Asif Sharif

Adversity occupies an important place in the history of PQNK, but it must be recorded with the same discipline applied to the field science itself. The years from 1997 to 2006 were a prolonged interruption in Asif Sharif's agricultural and commercial work. During part of that period his business activities were substantially disrupted by circumstances outside his control. This is not presented here as the cause of PQNK, nor as proof of a conspiracy against it. The science that later became PQNK emerged from a much longer sequence of field experience, observation, engineering, comparison and documentation.

What adversity did provide was perspective. Years away from normal commercial activity separated the accumulated agricultural knowledge from the business structures through which much of it had previously been applied. When Sharif returned to active work, the objective was no longer simply to rebuild what had existed before. The task was to use the accumulated experience of mechanised agriculture to develop a production system that reduced farmers' dependence on repeated tillage, excessive water, purchased inputs and unnecessary field operations.

THE INTERRUPTED YEARS: 1997–2006

By the late 1990s, Sharif had already spent more than two decades inside production agriculture, agricultural machinery, seed, irrigation, crop management and agricultural policy. That period had provided an unusually broad view of the conventional production system from both the farm and the machinery side. The interruption that followed halted much of the practical work. Business activity became largely dormant, relationships were disrupted and projects that depended on continuous field engagement could not proceed as before.

This interruption should be understood as a personal and professional adversity, not retrospectively rewritten as a period in which the mature PQNK protocol had already been completed. The Amazon visit was still to come in 2008, the mechanised raised-bed rice experiment in 2009–10 had not yet been conducted, Prof. Dr. Norman Uphoff had not yet described the emerging production system as Paradoxical Agriculture, and the name PQNK would not be adopted. Those later events were essential stages in turning decades of experience into a defined natural ecosystem science of production agriculture.

The significance of the interrupted years is therefore more fundamental. They tested whether the work was tied to a particular company, commercial position or institutional platform. It was not. The accumulated knowledge remained, and when active work resumed it could be rebuilt around a different purpose.

RETURN TO ACTIVE WORK: FARMALL TECHNOLOGY

From 2006, Sharif began rebuilding. FarmAll Technology was established in 2007 as a new platform for agricultural machinery, engineering, energy and production-system development. The restart was modest compared with the scale of earlier operations, but its direction was increasingly different. Machinery was no longer treated simply as a means of performing conventional agricultural operations faster. It became a means of asking which operations were actually necessary, which could be combined, which could be eliminated, and how machines could eventually be redesigned to protect rather than repeatedly disturb the soil production system.

A licence to assemble, manufacture and market Ursus-branded tractors provided an industrial base for this renewed engineering work. Implements were developed to reduce passes and improve precision. The All-in-One concept combined operations that would otherwise require separate field passes. These machines belonged to the transitional engineering period. They should not be confused with the mature PQNK machinery architecture that came later, in which permanent beds, controlled traffic and no-till planting through residue became governing requirements.

This distinction is important to the history of the system. PQNK was not conceived fully formed and then implemented. It developed through successive corrections. Earlier machines reflected what was understood at that stage; later machines such as the SIPP and VIPP reflected a deeper understanding that the soil should not be reconstructed for every crop. The engineering evolved as the science evolved.

SOLAR IRRIGATION AND THE WATER QUESTION

The 2007 restart also included work on solar-powered irrigation. This reduced the energy cost of lifting water and demonstrated the practical value of replacing diesel with solar energy where pumping was required. But it also exposed a deeper problem: cheaper energy does not by itself make irrigation efficient. If the production system continues to flood soil, lowering the cost of pumping can make excessive water application easier rather than solve the underlying water-management problem.

That distinction became increasingly important in the development of Soil Moisture Management. The central question shifted from how cheaply water could be pumped to how little additional irrigation a crop actually required when soil structure, aeration, surface protection and natural moisture sources were properly managed. Technology could improve the source of energy, but the production system had to improve the use of water.

FROM EXPERIENCE TO A KNOWLEDGE SYSTEM

The written PQNK knowledge system did not appear in a single period. It accumulated progressively as field observations were revisited, mechanisms were examined, farmer questions were answered, machines were redesigned and later field evidence became available. The Amazon experience of 2008 helped reveal the natural ecosystem as an integrated production system. The 2009–10 rice work supplied measured agricultural evidence. Subsequent field development tested the principles across crops and conditions. The description Paradoxical Agriculture captured the apparent “More from Less” contradiction seen from within conventional agriculture, and the adoption of the name PQNK gave the developing science its distinct identity.

The Knowledge Papers grew out of this continuing process. Their purpose was practical as well as scientific: to preserve observations, explain mechanisms, answer crop-specific questions and make the accumulated knowledge available to farmers without requiring them to pass through an institution or commercial input supplier. Over time the library expanded into crop papers, farmer advisories, machinery specifications, soil and water explanations, field evidence, economic analyses and implementation guidance.

Writing also imposed discipline on the science. A field practice can appear successful without its mechanism being fully understood. Writing forces the next questions: Why did it work? Under what conditions? Which part is a field observation, which part is an established biological mechanism, and which part still requires measurement? That discipline became increasingly important as PQNK moved from the experience of one practitioner to a system intended to be understood and applied by others.

FARMERS BECAME PART OF THE KNOWLEDGE NETWORK

Digital communication transformed the scale at which this knowledge could circulate. Pedaver's online and social-media platforms allowed papers, photographs, videos, questions and farmer experiences to move directly between the knowledge platform and the field. The importance of this development was not that every photograph or testimonial became a controlled experiment. It was that implementation was no longer confined to a single research farm. Farmers could see practices being attempted under different soils, crops, climates and scales, compare observations and contribute new questions and evidence.

This created two complementary evidence streams. Formal measurements and peer-reviewed work could quantify defined outcomes under stated conditions. Farmer photographs, videos and production records could document whether the adaptation was functioning at real field scale and reveal where the protocol required clarification or engineering improvement. The two forms of evidence serve different purposes and should not be confused, but together they made the knowledge system more responsive to production reality.

The result is a distributed knowledge network rather than a production method dependent on the permanent presence of its originator. A farmer can learn the governing principles, assess local conditions, establish the appropriate field architecture, use the required tools and apply the same biological process at a different scale. The engineering may change with tractor profile, soil, topography, crop and water source. The natural ecosystem principles do not.

INDEPENDENCE AS A WORKING PRINCIPLE

Pedaver's decision to remain self-funded became an important feature of the later PQNK programme. Independence allowed the work to be documented in its own terminology and developed according to field observations rather than the priorities of a funding programme. This does not make institutional research unnecessary, nor does institutional involvement determine whether the operating principles of nature are valid. Research has a different and valuable role: to measure outcomes, compare systems, investigate mechanisms, refine transition pathways and test engineering under different soils, climates and crops.

PQNK therefore does not ask agricultural science to validate nature. Nature is the production system. The research question is how accurately and efficiently production agriculture can be returned towards those operating conditions, how quickly degraded fields can recover, how the transition varies between environments, and how machinery and management should be adapted without violating the biological rules.

This position also protects a necessary distinction. Similarities between PQNK and later or parallel movements in sustainable, conservation or regenerative agriculture do not by themselves establish historical influence in either direction. What matters for this book is the documented development of PQNK itself: the field chronology, the engineering decisions, the measured results, the farmer evidence and the written record.

WHAT ADVERSITY CONTRIBUTED

Adversity did not invent PQNK. It changed the conditions under which the work continued. It broke the continuity of an earlier commercial career, forced a restart, and helped separate the agricultural mission from dependence on a particular business structure. The years that followed converted accumulated experience into a progressively clearer scientific and engineering framework.

That is the lasting significance of this chapter. A production system intended to restore biological independence in the field also had to develop intellectual and institutional independence around the knowledge itself. The science had to survive interruption, travel without its originator, be understood by farmers, and remain open to correction as new field evidence accumulated. The Knowledge Papers, the farmer network, the engineering programme and ultimately Pedaver.com became the infrastructure through which that continuity was secured.

WHAT PART THREE HAS ESTABLISHED

Part Three has traced the path from mastery of industrial agriculture to the recognition and codification of a different production logic. The cotton turning points exposed questions that the input-based framework could not adequately answer. The Amazon visit in 2008 revealed the natural terrestrial ecosystem as an integrated reference system. The 2009–10 rice experiment demonstrated that rice production did not require continuous inundation and opened a new engineering direction. The system was later described as Paradoxical Agriculture because it appeared to produce “More from Less.” Later the name PQNK was adopted, giving the developing science its own identity.

The interrupted years belong within that history, but not as a shortcut in the chronology. Their contribution was resilience, perspective and the determination to preserve and communicate what decades of field work had revealed. The discovery was not made in confinement. It was built across a lifetime of production agriculture, tested in fields, clarified through observation and engineering, and progressively converted into a knowledge system that farmers could use.

Part Three therefore ends where Part Four must begin. The history has established how the questions arose and how the system acquired its identity. The next task is to set aside the chronology and examine PQNK itself: its biological architecture, its field protocol, its engineering, and the sustained, self-regulating, near-closed-loop production state towards which the transition is directed.

⁂

Part Four: The PQNK System, The Complete Protocol