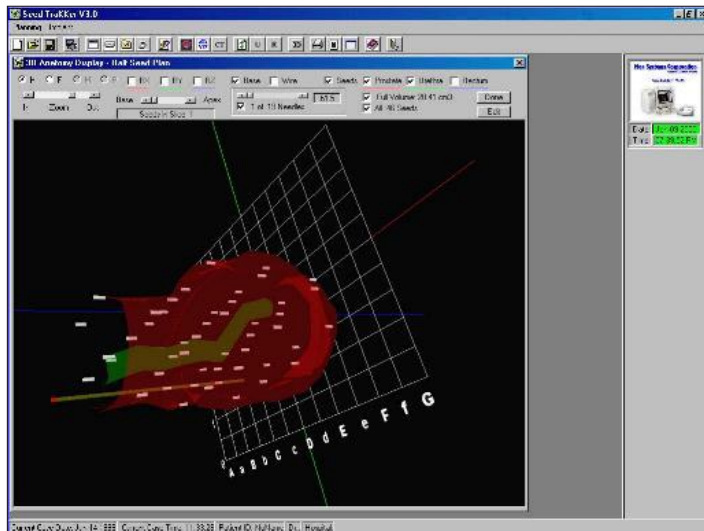


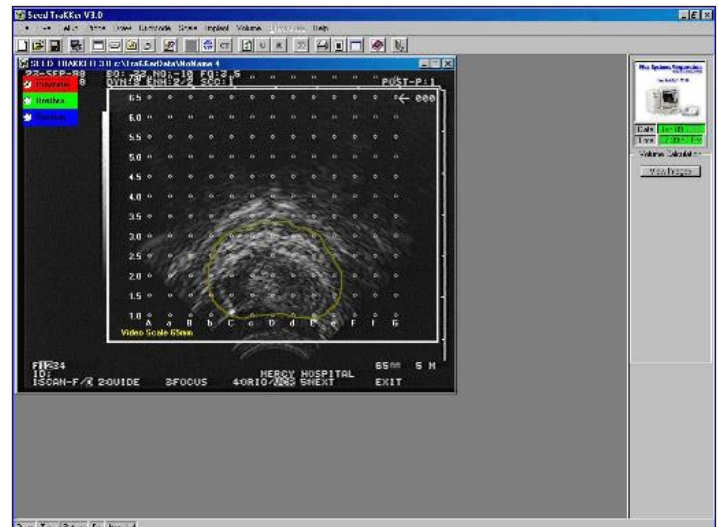


Mac Systems Corporation introduces the Seed TraKker™, a versatile PC-based system for the enhancement of ultrasonic brachytherapy of the prostate. The Seed TraKker offers powerful and functional additions or alternative to medical systems using the Transperineal Ultrasound Implant technique for treating prostate cancer by radiation.



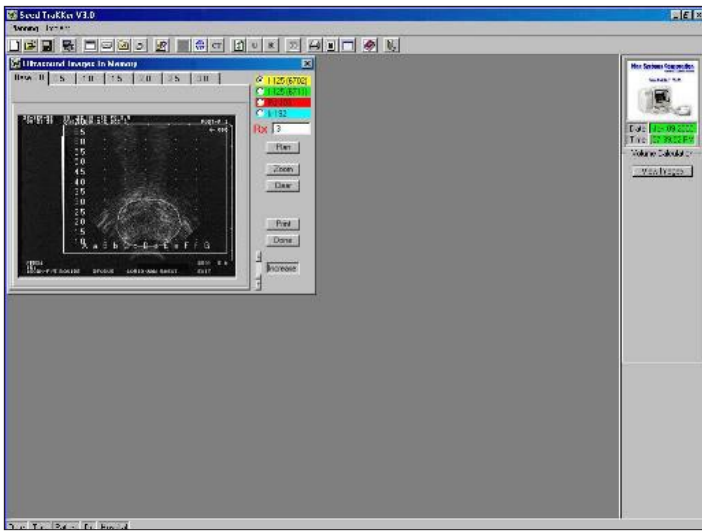
The Seed TraKker is designed to provide an economical way to improve the process of ultrasound guided percutaneous transperineal implantation using Iodine-125, Palladium-103 and other radioactive seeds for low end ultrasound systems. It is adaptable to any ultrasound system that generates video signals in NTSC or PAL formats. An electronic grid is superimposed on live ultrasound images to serve as visual guide for the real-time pre-operative seed placement planning; and also as needle and seed tracking aid during seed implant in surgery. Because of the flexibility afforded by only requiring a generic video signal as input; and of the fact that the electronic grid and needle guidance template are customizable, the Seed TraKker allows the users to extend the capabilities of their existing ultrasound units or to adapt it to others best suited to their clinical needs or budget.

For each case, up to 14 ultrasound images can be stored, recalled, and manipulated in any order. This capability significantly shortens the time required for the treatment planning saving staff time and minimizing patient discomfort. Starting from either live ultrasound input

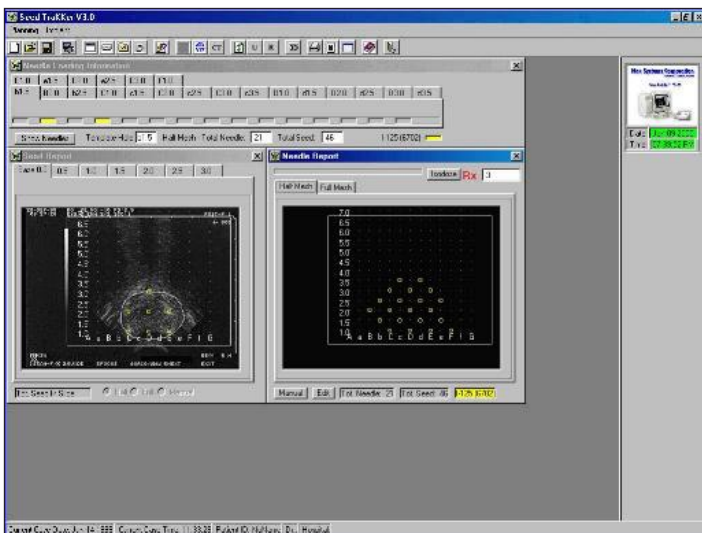


or scanned in ultrasound images, seed planning is done automatically providing two alternate plans. Interactive seed editing, as well as a completely manual seed placement can be done with point and click ease by use of a pen input device. Graphical needle loading visual aid corresponding to available seed placement plans can be used to plan and later to guide the actual implant process during surgery. Real-time AAPM TG-43 dose calculation and 3D displays are immediate and fully interactive. Full 3-D interactive display of all relevant anatomical organs gives the users unprecedented insights into the cause and effects of the radioactive seeds' interaction with vital organs. As a first feature ever present in comparable systems, 3-D seed editing can be done with full interactivity controlled by the user. All images can be printed by use of economical ink jet printers. Optionally, an efficient relational database provides patients' data storage and maintenance. This feature can also be used for regulatory and statistical purposes.

In its most basic mode of operation, the Seed TraKker is used to store ultrasound images of the prostate gland for offline planning. It also is used with live ultrasound images interactively where various steps comprising the guided percutaneous transperineal implantation can be performed. By way of a pen input device, the prostate gland and other relevant anatomical features can be outlined. The prostate volume is instantaneously computed. During this step, the selected slices are fully editable so that errors can easily be corrected.

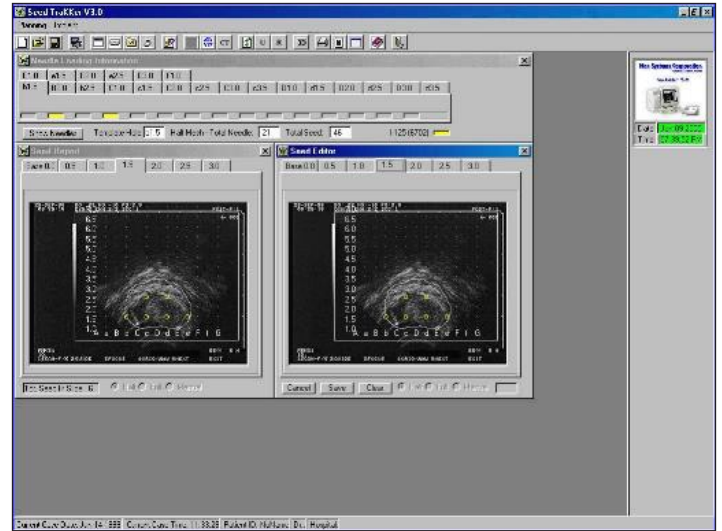


The cross sections outlined and their corresponding ultrasound images are stored internally so that they can be recalled for later processing. The outlines of the prostate gland are all that is needed so that automatic seed placement can begin. Two alternate plans are provided. Automatic seed planning also can thus start from a previously stored case, from digitized ultrasound images or from live video input. Four types of seed can be used whose color codes persist through all displays for any given analysis. New seeds can be added as their radioactive characteristics once defined can be added to the system at the user's site.

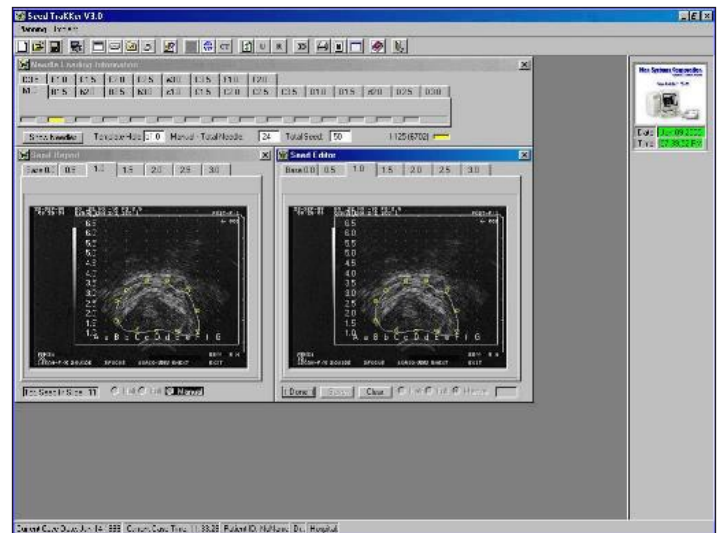


Automatic seed planning is instantaneous resulting in two seed placement plans. Sensitivity controlling the inclusion of seeds with respect to prostate gland's volume boundary is adjustable by the user. Displays consist of graphical reports of total needles for each of the two alternate plans; graphical report of seeds in each prostate slice and all needle loading reports both in tabular and graphical forms. A third user supplied seed placement plan is provided where manual seed place-

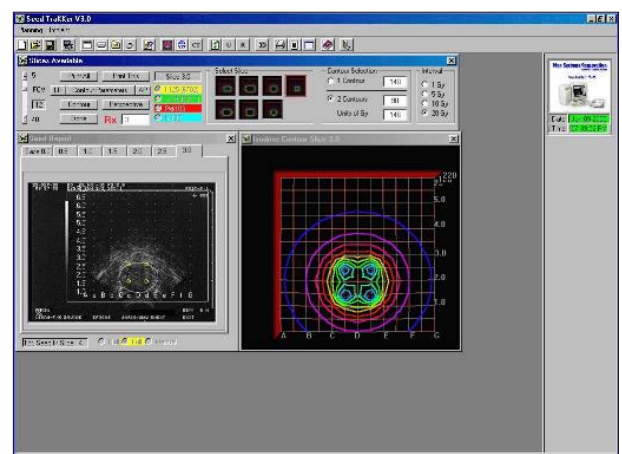
ment can be performed. A seed is added with a tap of the pen input and it is removed by a click of a button on the pen.



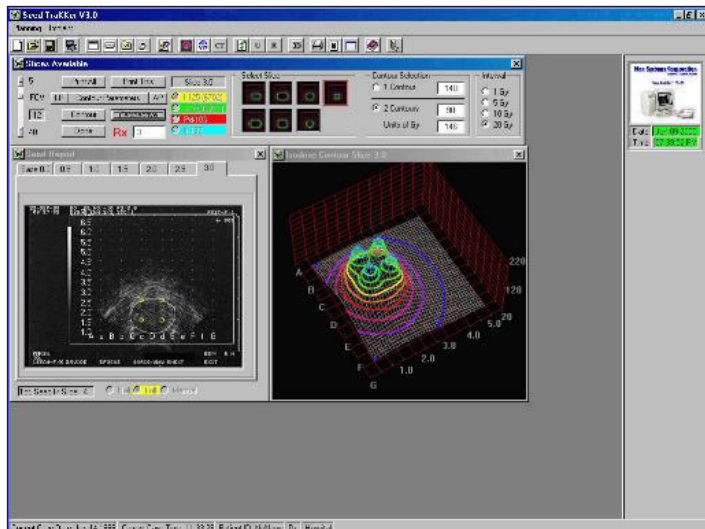
Interactive seed editing for all three available seed placement plans is effortlessly done with point and click ease by use of the pen input device.



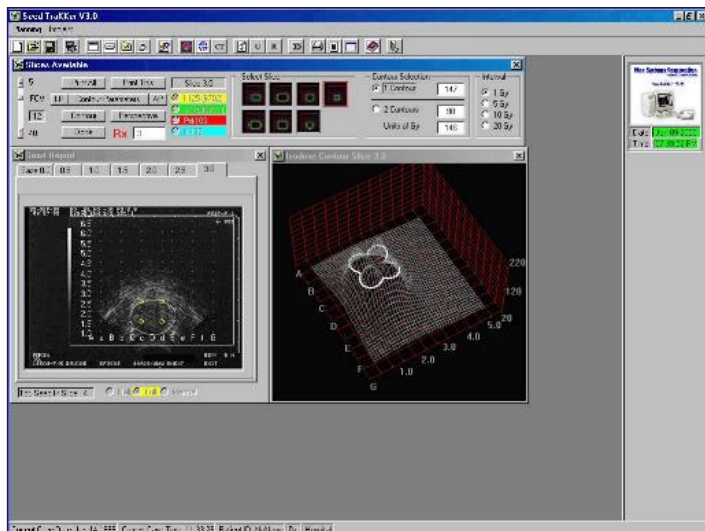
Fully AAPM TG-43 conformant isodose calculations for any of the available seed placements are quickly computed and displayed in various modes of display.



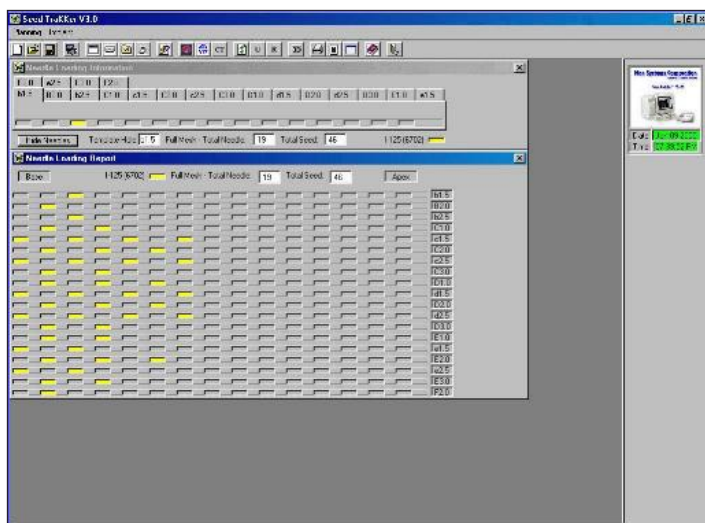
Isodose contours can be presented in various display mode, including insightful perspective view with full user interaction.



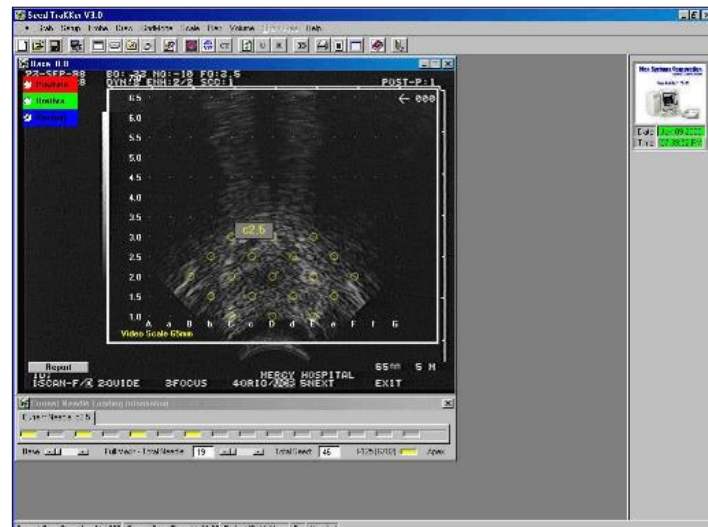
Prescribed isodose is displayed using user selectable choices in units of cGy.



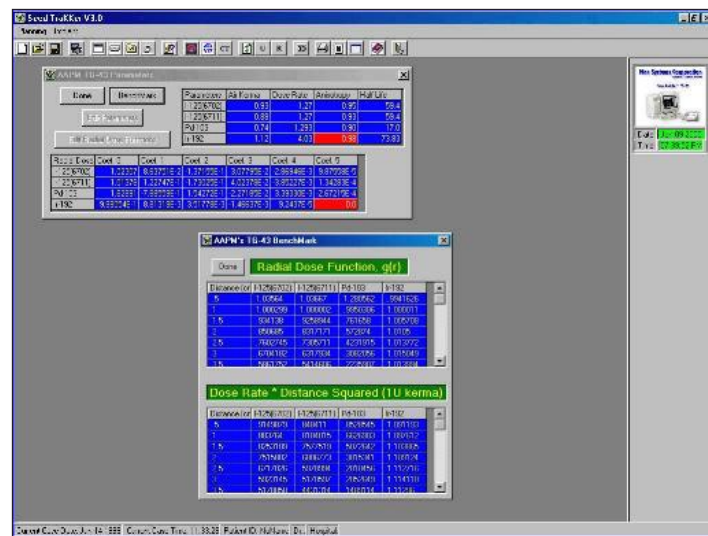
A graphical report of needle loading for all needles can be displayed at the user's request. The graphical presentation of loaded needles serves as an effective aid



The selected seed placement plan can then be used to guide the actual implant process. This implementation greatly facilitates the seed implant stage since the needle positions and associated needle loading information are conveniently displayed together with the live ultrasound images.

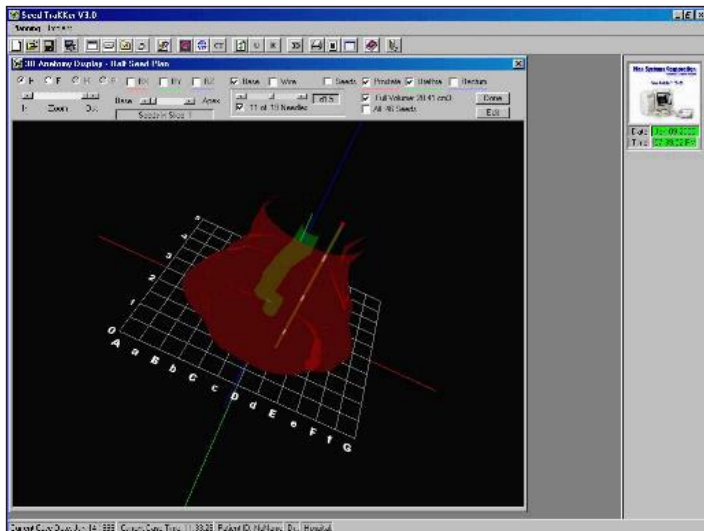


Mac Systems' Seed TraKker contains all desirable characteristics that a first class brachytherapy system would demand. It has built-in benchmarks following AAPM's guideline for TG-43 planning. It is also designed to be flexible to adapt to future changes that might be recommended by the AAPM at which time, new procedure updates can be incorporated at the users' sites.

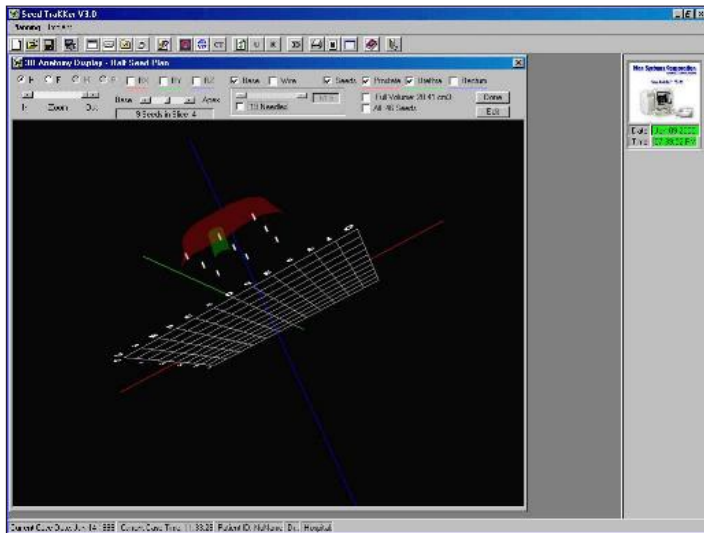


A great visual help found in Seed TraKker is a fully interactive 3D display of anatomical features together with the seeds and needles that are being planned for implant. The users can interactively control the display from full volume to individual slices while the entire structure can be rotated manually or automatically in any and all of three axis of rotation. Individual anatomical features can be shown or hidden from view as

well as all needles and seeds. Seed TraKker provides an unprecedented amount of user interactivity and control that sets it apart from other systems carrying much higher price tag in the marketplace.

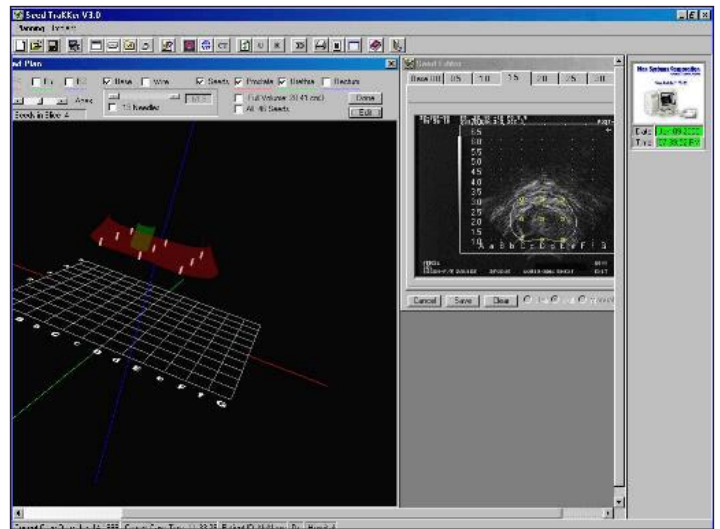


During the interactive 3D manipulation, the orientation of the entire scene is easily identifiable thanks to the display of the electronic template. This electronic template can be customized to accommodate any needle guidance template at the users' site.



Another unique feature found in the Seed TraKker is its interactive 3D seed editing capability. Any of the slices can be viewed in 3D and also in cross section superimposed on the ultrasound image while the seeds in that plane can freely be edited for fast recalculation of the isodose contours. In this fashion, seed placement can visually be checked for the possibility of undesirably affecting neighboring anatomical features.

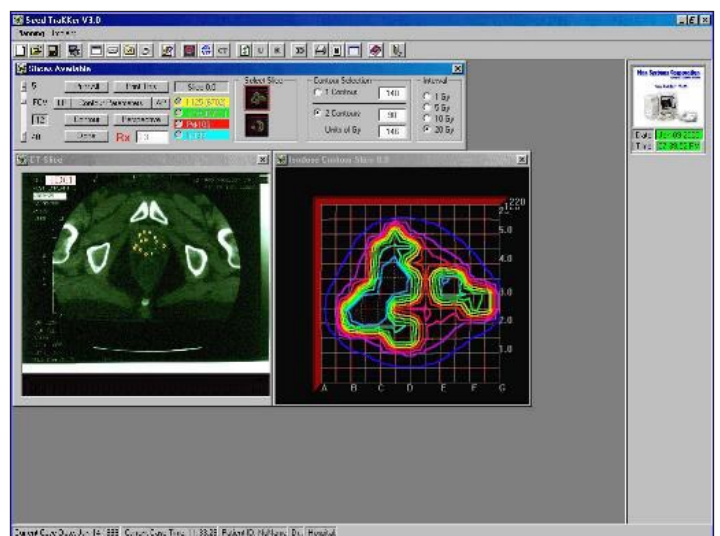
Working on CT images that can be scanned in or optionally imported via Dicom interface, implanted seeds can be identified and accurate accounting and positioning



can be obtained rapidly. Smart algorithm and effective visual aids provide fast and reliable seed accounting for isodose calculation of actual implanted seeds.

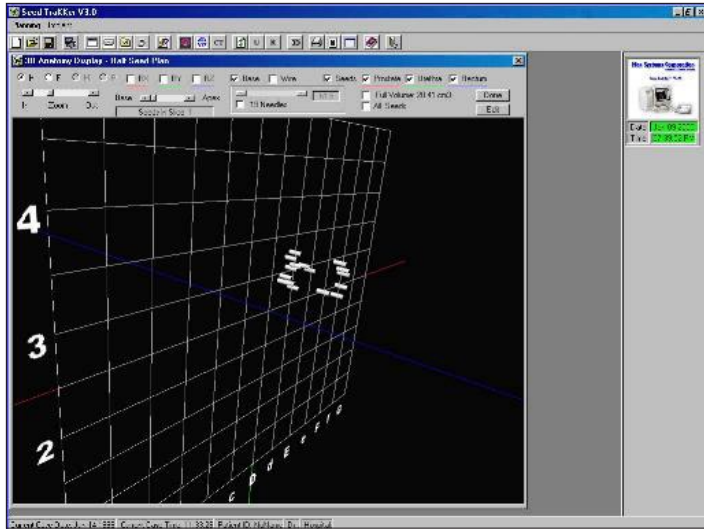


Once the seeds are accounted for by CT images input, actual isodose contours can be displayed in 2D and 3D perspective views.



Also, actual implanted seeds can be displayed and viewed in full interactive 3D with or without anatomical organs superimposed.

Seed Tracker™



All images shown in this brochure can be printed by use of economical ink jet printers. Needle loading report is also presented in traditional written report form.

Mac Systems Corporation Advanced Computing Systems

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Tel.: (305) 670-3009
Fax.: (305) 670-3099
Toll Free: (800) MAC-6250

System Specifications:

- Intel Pentium IV, 2 Ghz processor or faster
- 512MB DRAM
- 60 GB hard drive or larger
- High resolution video processor
- 15" color monitor
- DVD-Rom
- Keyboard and pen input
- Color ink jet printer
- Windows 2000, XP

Options:

- High Resolution SCSI Scanner
- Flat Screen Monitor
- Interface to Copath Pathology System for automatic database extraction for report generation (see report generation service on web.)

All specifications are subject to change without notice.

System Features:

- Video input from any ultrasound system
- Electronic grid overlay
- Grid labeling and size adaptable
- Calculation of area and volume
- Visual target guidance
- Ultrasound images saving
- Ultrasound images recall
- Automatic and manual seed placement
- Interactive seed placement editing
- Easy to use and accurate pen input
- Real-Time AAPM TG-43 Dose Calculation
- 3D Anatomical and Isodose Displays
- Support Scanned In Ultrasound Images
- Support Scanned In CT Images
- Real-Time CT Seeds Identification
- Real-Time Dose Calculation for CT Seeds
- Images printed on plain paper
- Saving and recall of last case
- On line help

Options:

- Relational Database
- DICOM Interface for image import/export

