The concept of drop or non drop-frame is only for a VTR and editing software counters. It does not affect the actual video. Frames are not being dropped or added in your digitizing or editing when you make these choices.

**Two technologies come to a clash.** (by Don McLaren)

Clock: A wall clock or wrist watch is sub divided in units of 60 and 30 units. To subdivide one second one should subdivide the second by a division of one 30th. In fact this was the speed of old black and white television frame images. Some video devices still use the words “line sync” which means 60 hertz. In other words, at one time there was a direct connection between the wall clock and the video signal. They both ran at the exact same speed.

Television: With the advent of color television there was a required shift to 29.97 frames per second. This was to minimize a beat pattern in the luminance and chroma signals. No longer was a frame of video timed with the clock on the wall when we changed over to color television. But we still need to know how long the video segment or television show is. (Note: today when we produce black and white images, they now run at 29.97 frames).

**Terms had to be devised to point out this clash in technology and its resolution:**

**Drop-frame** = Counts 29.97 frames per second and skips ahead to keep up with the wall clock. The skipping action takes place by dropping video frames in the counter hence the name “drop-frame”. When the counter is about to change from 29 frames to 30 (00) the counter will skip or drop two frame numbers (00 and 01) and jump to 02. Those two missing frame numbers might pose a problem for some precise editing decisions.

This skipping (dropping) will result in one hour of indicated drop frame timecode plays for exactly one hour. The device continuously counts 30 frames but drops two frames from the count every minute except for every tenth minute to maintain synchronization of time code with clock time. (2 frames dropped) x 60 minutes = 120 frames dropped - 12 (number of 10th minutes) = 108 total frames lost in one hour. The software will drop 108 frames in one hour or 3.6 seconds. The frames are not dropped from your program video! They are dropped from the time code counter. The counter skips ahead to maintain synchronization with the wall clock. In other words, if you are editing a show that has to be exactly 10 minutes long, using drop-frame will allow you to use the time code readouts in the software program to calculate the actual show time. I believe that for most editing this would be just fine. This would especially be true when one is doing a news piece that requires fast editing and accurate run time. Drop-frame is usually used in broadcast master tapes (for air).

**Non drop-frame** = Sometimes called NTSC time code. Every frame is displayed on the counter while the recorder is playing back at 29.97. The counter is slowly losing synchronization with the wall clock the further the tape is played. This is because the video tape recorder is showing us every frame and not modifying the VTR and editing software SMPTE display clock. Non-drop frame time code **is not time accurate. It is frame accurate.** It will count frame 00 and 01 frames every time. One hour of indicated non-drop frame time code actually requires 1 hour and 3.6 seconds of play time. If you use this method, you are able to time every frame that passes your screen but not the run time. You would need a time code calculator to realize how much your program is in length. I believe that we might be able to find one of these programs for the Macintosh machine, possibly for free (shareware).

Book: Premier With a Passion by Michael Feerer, second edition. Page 383. “For the most accurate results, select the time code format used on your source videotapes”. “Note that if your source tapes are in drop-frame format, the Clip window’s time code indicator may not exactly match the tape’s true time code. By selecting “Drop-Frame” in this menu, Premier will adjust the EDL’s time code to precisely match the source video”.

Book: Media 100 User Guide
Page 209. “The timecode in your program should match the timecode on your source tape”. Comment from Rob at A-Vidd in Long Beach: The Media 100 prefers non drop-frame. The reason is that if your edit point is close to a dropped frame (for the counter) the program might hiccup.

Book: Media 100 Reference
Page 318. (Speaking about non-drop frame). “Because of this time discrepancy (error of 0.03 frame per second), non-drop frame timecode is typically used only in short programs of a few minutes duration, where the time difference is negligible, or in programs where the exact length is not important”.

**Recommendation:**

There does not seem to be any hard fast rule. Because both manuals make the reference to choosing the same timecode as when you shoot the video, this then begs the question as to what to choose when you shoot. Non drop-frame is the answer to meet the requirements of the Media 100 and for any critical editing. But, choose drop-frame if critical editing is not important and you need to time the show quickly and accurately. If you provided an air copy, then you should choose drop-frame for the record machine during the dub process.